

# University News

MONDAY, SEPTEMBER 25, 1989

Rs. 2.50

**Role and Functioning of  
Teachers' Organisations**



**Agricultural Universities and  
Rural Development**



**Status of Medical Education**



**Academic Linkage**



**University-Industry Symbiosis**



**International Literacy Year**



# UNIVERSITY OF DELHI

DELHI-110007

No. Estab. IV/123/89

Dated : 11th September, 1989

Applications in the prescribed form are invited for the following posts :

Department	Post	Special/desirable qualifications (if any)
Anthropology	P-2 R-2  L-4 (1 temp. upto 30.6.90)	(For P-1)—Social Anthropology (For P-2)—Physical Anthropology/Pre-history. (For R-1)—Social Anthropology & R-2 (For L-1)—Social Anthropology L-2)—Physical Anthropology L-3)—Pre-history (Temp. L-4)—Experience in any branch of Social Anthropology.
Arabic	R-1	—
Botany	RA-1	—
Centre for Human Resource Development	RA-2	—
Commerce	R-1 L-1 RA-2	(For R-1)—Specialisation in Industrial Business (For L-1)—Organisational Behaviour/Human Relations.
Economics	R-2 L-1 (teaching of English)	— (i) 3 years experience of teaching in a School or in a training College. (ii) Specialized qualifications in the teaching of English.
Geology	P-2	(For P-1)—Specialisation in Petrology/Economic Geology/Biostratigraphy. (For P-2)—Aptitude in Instrumentation.
Hindi	RA-2 P-1 R-1 L-1	— — (For R)—Specialised knowledge of Linguistics with reference to Hindi Language. (For L)—Experience of teaching Hindi as a second language.
Management Studies	R-1 L-3 (1 temporary)	(For R)—Financial Management/Quantitative Techniques/Computer and MIS. (For L)—Human Resource Management/Personnel Management. (For L Temp.)—Financial Management and accounting.
Persian	RA-1	—
Physics & Astrophysics	L-1 (temp. upto 30.6.90)	—
Psychology	P-2 R-1 RA-1	(For P-1)— (For P-2)—Applied Social Psychology. (For R)—Cognitive Processes.
Social Work	Lecturer-cum-Community Organiser-1 (temporary, likely to continue on year to year basis).	Advance course in Research Statistics and work experience on research/evaluation projects/youth work.
Urdu	L-1	Sound knowledge of classics.

P	=	Professor	—Scale of Pay	Rs. 4500-150-5700-200-7300
R	=	Reader	—Scale of Pay	Rs. 3700-125-4950-150-5700
L	=	Lecturer	—Scale of Pay	Rs. 2200-75-2800-100-4000
RA	=	Research Associate	—Scale of Pay	(a) Rs. 2200-100-2700 (b) Rs. 2700-100-3200 (c) Rs. 3200-100-3700 (d) Rs. 3700-125-4325

On the recommendation of the Selection Committee.

All posts other than Research Associates carry DA, CCA and HRA etc. as admissible under the rules in force in the University from time to time.

The details regarding prescribed qualifications and application forms for various posts can be had from Room No. 205, Estab. IV Section of the University from 9.30 a.m. to 12.30 p.m. and 2.00 p.m. to 5.00 p.m. either personally or by sending a self-addressed envelope (size 13 cm x 28 cm) with postage stamps worth Rs. 6/- addressed to 'The Registrar, University of Delhi, Delhi-110007.

All communications in this respect should be addressed to the 'Registrar, University of Delhi, Delhi-110007'. The last date for receipt of the applications is 12th October, 1989.

Madan Mohan  
REGISTRAR



# UNIVERSITY NEWS

VOL. XXVII SEPTEMBER 25  
No. 39 1989  
Price Rs. 2.50

A Weekly Chronicle of Higher  
Education published by the  
Association of Indian Universities

## IN THIS ISSUE

The Role and Functioning of  
Teachers' Organisations in  
Higher Education

Agricultural Universities and  
Rural Development in India

6

### Convocation

Institute of Medical  
Sciences, BHU, Varanasi

9

### News from Universities

University-Industry  
Symbiosis

14

Refresher Course in  
Economics

14

Attendance Rules Revised  
at Bangalore University

15

M.A. in English Language

16

### Agriculture

New Plant Growth  
Regulators

16

### News from Abroad

Objectives for International  
Literacy Year

17

### News from UGC

INSAT-1B Programme

18

Research in Progress

21

Theses of the Month

22

Classified Advertisements

28

Opinions expressed in the articles  
are those of the contributors and  
do not necessarily reflect the  
policies of the Association.

Editor :  
SUTINDER SINGH

## The Role and Functioning of Teachers' Organisations in Higher Education

Rm. Sethunarayanan\*

It is now realised by all that Teachers' Organisations have a vital role to play both in the formulation and implementation of educational policies in all countries. No longer is it considered that their job is only to strive for the betterment of the living conditions of teachers, increased emoluments and security of service. The Kothari Commission (1966), pointing out that "teachers' organisations, in all parts of the world, after starting as 'trade unions', designed to fight for material benefits, have gradually become bodies concerned with many aspects of their members' lives", enumerates their functions as follows :

1. To secure for their members, individually and collectively, their rightful status—social, economic and professional.
2. To safeguard their professional interests and to secure satisfactory conditions of work and service.
3. To secure the professional growth of teachers through refresher courses, seminars, publications, library service and research.
4. To work for the improvement of education in response to the challenges of the ever-changing social-economic situation.
5. To improve the teaching of subjects through the establishment of subject-teacher's associations.
6. To establish a professional code of conduct for teachers and to ensure that it is followed by their members.

During the British Raj, before the introduction of partial self-government in the country in 1920, education was considered to be merely an appendage to administration, whose interest was to produce only that amount and quality of manpower that was needed for carrying on its work. From 1920 onwards, the need for better education with a wider purpose came to be felt more keenly by the public and, teachers' organisations began to serve as a vehicle of public opinion in this regard. They formulated the national goal for education and suggested improvements in educational programmes. It may be remembered that the All-India Federation of Teachers' Organisations was founded in 1925 and it was a professor from the South—Prof. Seshadri, Professor of English at the Banaras Hindu University then—who was its first President and he was ably assisted by Shri D.P. Khattiry and Dr. Amarnath Jha, and these three are rightly known as the 'Tri-Murti' of the Teachers' Movement in India. The First All India Convention of University and College Teachers was, however, held much later at Indore in 1964. These two Central bodies along with their constituent teachers' organisations have all along been mainly preoccupied with fighting for better conditions of service and salary scales. But, with the recent revision of pay scales for University and College as well as School teachers all over the country, the time

\*Vice-Chancellor, Annamalai University,  
Annamalainagar-608 002



has now come for these professional organisations to pay greater attention to the other important roles they have to play in our national life.

### Good Teacher

In this context, I would like to stress upon the functions and characteristics of a good teacher. Good teachers do not just happen. They are the product of the highest personal motivation, encouraged and helped in their work by adequate salaries and the respect, support and goodwill of the society. It should not be forgotten that it is one of the noblest professions. Therefore, those who are in charge of teaching must be prepared for some sacrifice. A spirit of devotion is required of all the teachers. The task of the teachers is somewhat difficult and it is a painful, continual process and, a difficult work to be done—by kindness and firmness, by watching and warning, by precept and by praise; but above all, by example.

To teach is to transform by informing, to develop a zest for life-long learning, to help pupils to become mature, independent learners, architects of an exciting and challenging future. Teaching at its best is a kind of communication, a meeting of minds and merging of ideas. If the object of teaching is to enable a student to get along with its teacher, he must know the feelings of the students, their beliefs, understandings, aspirations and values. As Horace Mann said :

“The teacher who is attempting to teach without inspiring the pupil with a desire to learn is hammering on cold iron.”

In the words of Dr. S. Radhakrishnan :

“A good teacher must know how to arouse the interest of the pupil in the field of study for which he is responsible, he must himself be a master in the field and be in touch with the latest developments in his subject, he must himself be a fellow-traveller in the exciting pursuit of knowledge”.

A teacher is a farmer with the seedlings; he is the forge and the anvil and the hammer that temper and sensitise the mental faculties ; he is a friend, philosopher, guide who wins the student's affection, faith and trust and helps him to mould his character and shape his career in consonance with his aptitudes and aspirations. He should find a way to release the flood of energy in the youngmen for the onerous

task of construction and creation. Unless one undertakes teaching in a spirit of dedication, unless one feels personally and deeply involved in the purposes and processes of the education of youth, the whole aim of the educational endeavour is unlikely ever to be accomplished. In the theatre of the phenomenal world, in the pursuit of one or other academic discipline, aspiration must look up and grace respond. A student must look up trustfully and the teachers talk on a level with him, inspiring trust and hope, and so on to the next step and the further step and all the other upward steps. In the words of Justice Mohan. “Education involves the dynamic and discipline of a good lawyer. All life is a struggle and a journey and academic life is a constant friendly wrestle between student and teacher, and both together with the subject, and even as one struggle ends in victory, the journey takes the participants to another stage, and the struggle has to be renewed and won : renewed again as still another, and highest even. A teacher is the master who has to communicate not only his knowledge, but also his vision, his enthusiasm, the ardour of his purpose, the animation of his remembered past victory, to the aspiring pupil, re-enacting the struggle and the journey and the victory once again. The role of a teacher partakes of various hues like a Rainbow : a savant, fellow-student, adventurer, guide, admonisher, consoler, comrade, friend and all at once.”

As to the Art of Teaching, Gilbert Highest says :

“One of the chief aids of learning is the sense of purpose. One of its chief rewards is the sense of achievement. One of its chief aims is to develop the structural faculty.”

A teacher should develop a passion for his job, and dedicate himself wholly to the profession, without himself engaging in unacademic pursuits, if he is to earn a name and fame, and command the respect and reverence of his pupil and the society. How many of us do really fulfil these requirements ?

### Teaching Profession

It is true that the efficiency of the teaching profession and its contribution to national development in general and educational improvement in particular are to some extent related to its social status, which in turn is dependent not only on the economic status and civic rights of teachers but also—in fact, to a greater extent on their professional competence, character and sense of dedication. Their economic



status is now vastly improved. Now that their civic rights and privileges are also assured, there is no reason why they could not at least now begin to realize their duties and responsibilities to the students and the society too. Unfortunately in India, to a greater extent, unless we have dedicated teachers, there is not going to be any improvement in the present standard of education and character in our country. Teachers' organisations should help inculcate among teachers a sense of commitment to the profession, devotion to duty and a selfless service. Let them not forget that our country has produced great teachers all through the ages and they have all been known for their great wisdom as well as simple living and high thinking.

In the past, people were drawn to the teaching profession not because it was more paying but they loved teaching and the teachers were held in high esteem by the society. Our ancient literature equated teachers to God. Only teachers could help us produce leaders of society and economy in all areas of manifold activities with a commitment to the ideals of patriotism, democracy, secularism and peace, and the principles enunciated in our constitution. To quote Dr. S. Radhakrishnan, the greatest of teachers, "Education should give us not only elements of general knowledge or technical skills, but also impart to us that bent of mind, that attitude of reason, that spirit of democracy which will make us responsible citizens of our country." Society will respect only teachers of this kind and no amount of increase in emoluments alone would enhance their social status.

But now professions such as Medicine, Engineering and Law enjoy greater social status than teaching for reasons other than economic also. Professional organisations in the former assume greater responsibilities in respect of the professional conduct of their members than those in teaching. The code of professional ethics for University and College teachers prepared by the UGC with the active involvement of the AIFUCTO should be accepted by all and it becomes imperative on the part of all teachers' organisations to ensure that all their members strictly adhere to the code laid down.

Another measure which could contribute to the raising of the status of the teaching profession in the eyes of the public is the acceptance of the principle of accountability. It is the duty of teachers' organisations to sit together with the different authorities and evolve a system of continuous assessment of teachers' work, which alone would ensure that they

realize fully all their responsibilities to their students as well as society. It is high time that this professional problem receives greater attention from all, than at present.

Both the politician and the administrator are generally more concerned with the economic development of the country and we need a group of people who can devote undivided time and attention to the development of its human resources. Who else are more fitted for this than teachers? They can more effectively focus public attention on the various problems of human resources development than others. They should only come out of their narrow shells and begin taking interest in the various problems facing the country today. They can bring to bear a dispassionate mind on the consideration of various national issues and contribute in a significant manner to public debates on them. Teachers' organisations should provide a forum for such academic dialogue and discussions. If university autonomy and academic freedom are not to remain mere empty words, universities, colleges and teachers' organisations should afford an opportunity to teachers for a fearless expression of their views on national policies and programmes. It is unfortunate that the academics in our country are not, by and large, playing their part well in public life. It does not mean that they should take part in party politics but, on the other hand, keep themselves away from it both individually and as an organised body. However, they should give the benefit of their considered opinion to the society not only on the educational but also on the different social and economic issues, facing the country. Teachers, by virtue of their profession, are in a unique position to sense the swift changes taking place in the world and to visualize the future needs of their country. Hence their organisations are the best agencies for presenting the needs of the country in different sectors of life, particularly, education and it is they who can help the administration in the formulation of its policies and programmes. In particular, they have a very important role to play in the overhauling of our education system, defining goals at different stages of education and framing of curricula. At specially organised seminars as well as at their annual conferences, these problems—educational as well as others—should be taken up for discussion and their considered views conveyed to the administration.

It is hoped that the latter, too, will pay heed to what these professional organisations say and take



them into account in policy-making and implementation of programmes. Not only teachers' organisations but other professional organisations, too, should rise above their narrow interests and contribute to the efficient functioning of our democracy by not sitting in ivory towers or on the sidelines but actively involving themselves in public debates and discussions on national issues. It is time the academics of our country, in particular, rose from their slumber in this regard.

Another important role of teachers' organisations is to contribute to the professional development of teachers by organising different kinds of in-service programmes such as seminars, workshops, etc. to give them greater mastery over their subject areas and new insights into the methods of teaching and evaluation. They should make the public know that they are not just interested in getting better scales of pay only but are deeply conscious of their professional obligations also. When teachers increase their professional competence and teach better, their standing in the eyes of the public, too, will grow. We should not forget that a good teacher is always a learner. In fact, not only for teachers but for all, learning is now a life-long affair—from the cradle to the graveyard.

Teachers' organisations abroad like the American Association of Teachers in the USA and National Union of Teachers in the UK have followed or are following an almost identical pattern of growth. As the Education Commission (1966) points out, "starting as 'trade unions' designed to fight for material benefits" they are gradually becoming bodies contributing to the professional growth of their members and also the efficient functioning of their democratic systems of Government. The latter body, for instance, was founded in 1870 "because of a desperate need to improve salaries and conditions of work. Since then it has broadened its functions enormously though it still continues to be active and increasingly successful in negotiating material benefits for its members."

Just like the foreign teachers' organisations, our National and State Associations, too, should get interested not only in the professional development of teachers, as mentioned earlier, but also in advancing the frontiers of human knowledge through funding of research programmes and also publications. It is worthwhile here to note that the American Association of Teachers has brought out several yearbooks so far on different areas of educa-

tional research. The All India Federation of University and College Teachers' Organisation (AIFUCTO) should encourage its members in all possible ways to undertake research and also play an active role in the dissemination of new knowledge through worthy publications, in addition to quarterly or monthly journals.

Journals published by the teachers' organisations should not only report their activities but also contain articles of educational experiments and practices. They also should help the association in maintaining close contacts with their members, in stimulating interest in their work, and also in keeping them informed of how their colleagues in India and abroad are dealing with different professional problems. In this connection it is worthwhile to recall the great services rendered, in this area in particular, and the growth of teachers' movement in general, by the late Padmashri S. Natarajan, who was not only actively associated for about three decades but also was one of the Vice-Presidents of the World Confederation of Teachers' Organisations for as many as nine years. Due to his untiring efforts, the South India Teachers' Union, Council of Educational Research and also a Publications Unit were set up at Madras years ago. It is gratifying to note that the former is still functioning and is bringing out its monthly journal "Experiments in Education" regularly.

The rôle of teachers' organisations at different levels of education, in bringing together teachers teaching different subjects and in different institutions situated in different places and promoting the development of professional solidarity among them cannot be over-emphasised. Their annual conferences, too, held in different parts of the country, contribute not in an insignificant manner, to the promotion of social and national integration.

Like progressive industrial organisations, teachers' organisations should take interest in helping their members to build their own houses. Recreational centres, and Holiday homes for teachers should also be started in as many places as possible.

There is another important area where teachers' organisations can set an example for other social institutions to follow—namely, democratic functioning. The promotion of personality cult is a dangerous development in our country as elsewhere for it strikes at the very roots of democracy. Teachers'



organisations should not fall a prey to this evil trend in national life but function in the most democratic way possible. Also, it should refrain from agitational methods. In fact, it would be better if they decide to give up such methods altogether and strive to achieve their objectives through peaceful means such as negotiations, conciliation and arbitration or other peaceful methods of voicing their grievances. Teachers taking to streets, raising slogans whatever may be the righteousness of their cause, will bring down their image in the eyes of the students and the society. In this context, reference should also be made to an important recommendation of the Kothari Education Commission (1966), namely, the setting up of Joint Consultative Committees, consisting of representatives of teachers' organisations and administration to resolve the problems of teachers when they arise.

In conclusion, it should once again be emphasised that the various professional organisations in the field of teaching should fully realize their professional as well as social obligations and act accordingly to mould a generation of students, who will become good citizens, great scholars and eminent scientists, thus contributing to the building up of a

new social order in our country based on the principles of democracy, socialism and secularism. Let them, through concrete, constructive action disprove the cynical words of those who say, like Shaw, "He who can, does; he who cannot, teaches!" □

#### REFERENCES

1. Dewey, John : *Democracy and Education*, New York, Macmillan, 1953.
2. Golde, Norman M. and Porter, James F. *The Changing Role of the Teacher : International Perspectives*, New York, Macmillan, 1970.
3. *National Education Policy*, Government of India, 1986.
4. *Report of the University Education Commission (1948-49)*, Government of India.
5. *Report of the Education Commission (1964-66)*, Government of India.
6. *Report of the Task Force on Code of Professional Ethics for University and College Teachers*, University Grants Commission, 1989.
7. Hoyle Eric : *The Role of the Teacher*, London, Routledge and Kegan Paul, 1969.
8. Anand C.L. and Others : *The Teacher and Education in Emerging Indian Society*, New Delhi, NCERT, 1983.
9. *54th Founder's Day Commemoration Address* delivered by Hon'ble Thiru Justice S. Mohan, Annamalai University, 1988.

## AMERICAN STUDIES RESEARCH CENTRE

Hyderabad 500 007

Applications are invited for the position of

### DEPUTY LIBRARIAN

The ASRC has the largest library and the most complete facilities in Asia for research on all topics relating to the United States of America. It serves scholars from India and South Asia writing both post-graduate theses and mature works of scholarship.

#### QUALIFICATIONS

- (1) Must hold a Master's degree in library science, and preferably a Doctorate.
- (2) Excellent academic record with a first (or at least high second) class Master's degree in one of the social sciences or the humanities or history.
- (3) Five years' experience as a teacher or librarian in the humanities or social sciences, to include at least two years spent in a social science or humanities library.
- (4) Must be thoroughly fluent in English, both written and spoken.
- (5) Should have a good working knowledge of several disciplines in which the ASRC specializes (literature, history, political science, sociology, etc.)
- (6) Should be conversant with various activities of a research library such as procurement and processing of books and periodicals, circulation systems, documentation services, assistance to readers, supervision of special collections, maintenance of library materials, reprography and binding units, and general library admission.
- (7) Experience and knowledge of computer applications to libraries is highly desirable.

Scale of Pay : Rs. 3700-125-4950-150-5700. Allowances admissible in the scale follow those of Central Universities.

Deadline : Applications on plain paper should reach the Director by 31 October, 1989. Applications must include the names of three (3) references who will be contacted for evaluations of an applicant's ability and suitability for the position. Those called for interview will be paid first class round-trip railfare plus appropriate per diem.



# Agricultural Universities and Rural Development in India

B.C. Bhowmick\* and D.K. Gogoi\*\*

Agricultural Education has made tremendous headway in India especially during the post independence period. At present, there are 26 Agricultural Universities covering almost all the states except a few north-eastern states of the country. As per the common mandate of all these agricultural universities, their major efforts should be towards application of science and technology in solving the problems of rural areas. It is a matter of national pride that these universities have augmented their technological capabilities and could bring home the 'Green Revolution' in rural areas of a number of states. The achievement of India's self sufficiency in food from 54m tonnes in 1950-51 to 150.5 million tonnes in 1985-86, is largely attributed to the technological breakthrough of these agricultural universities.

The challenge of rural development (as has been conceived in the latest Integrated Rural Development Programme), is yet to be met by the agricultural universities. The benefits of the technology developed by agricultural universities could reach only small segment of the rural population specially the well-to-do farmers. As a result the disparities between rich and poor have widened. In the Punjab state where the green revolution was prominent, a study of ICSSR, New Delhi revealed that one third of marginal and one fourth of small farmers were living below the poverty line and they were unable to earn adequate income from crop production. As reported by Mehta (1984) the income disparities have undoubtedly increased due to technological innovations, but people below poverty line are much fewer (30.6 per cent) in Punjab as compared to the other states. At the national level 39.0 per cent of rural population are living below the poverty line.

The Government of India has designed appropriate programmes like Integrated Rural Development Programme (IRDP), NREP and lately Jawahar Rozgar Yojana, to remove income disparities and elevation of the rural poor. In harmony with the efforts

of the government, the agricultural universities should come forward to reorient themselves to meet the challenge of rural development with social justice. The following strategies are suggested to redefine the specific objectives of education, research and extension activities of the agricultural universities.

## Reorienting Agricultural Education

Agricultural education in real sense should be dynamic in nature. In context to reorientation of agricultural education, University of Agricultural Sciences, Bangalore, had very timely organised a national seminar on "Agricultural Education for Regional Development and Self-Employment" during November, 1987. The ideas developed through discussions in the seminar may provide some guidelines for reorientation of agricultural education in India. These are :

- I. Ruralization of agricultural education by
  - (a) Reorienting the undergraduate programme, introducing "Rural Agricultural Work Experience Programme" in the undergraduate course curriculum, (as suggested by the Deans' committee report 1985).
  - (b) Introducing agricultural syllabus at school level.
- II. Establishing Agricultural Polytechnics to develop technicians and entrepreneurs for agriculture and allied sector.
- III. Establishment of Rural Agricultural Institutes in each district.

Lately, the XVIth Convention of the Indian Agricultural Universities Association held at Kerala Agricultural University, Trivandrum, also had its theme the role of agricultural universities in rural development. The papers presented at the Convention also indicated some guidelines in reorienting the universities' education, research and extension systems.

## Reorienting Agricultural Research

Although the technology developed by the agricultural universities has been acclaimed as a triggering

\*Associate Professor & Head, Deptt. of Agricultural Economics and \*\*Associate Professor of Agricultural Extension, Assam Agricultural University, Jorhat.



factor of Green Revolution in the country, the fruits of agricultural research are yet to reach the rural poor. The agricultural universities have a long way to go to achieve their mission of serving the rural people. Arakeri (1982) envisaged in one of his latest books on "Indian Agriculture" that a set of technology has to be developed and made available to the millions of farmers who are making a living with meagre resources available with them. Dr. M.S. Swaminathan while addressing the International Symposium organised by ICAR in 1979 states ".....what most developing countries need urgently is a low cost, low risk, labour intensive (productively) and ecologically beneficial technology."

With a view to meet the challenge of rural development, an agenda for agricultural research must be prepared. Some broad areas in which research efforts may be concentrated in the next few years, are listed below :

- (i) Development of appropriate and need-based technology (as specified by Dr. Swaminathan) for agriculture and allied sectors—animal husbandry (Dairy and Poultry) fishery, sericulture, food processing, etc.)
- (ii) Action research on rural development to understand and explain the constraints in elevating rural poor.
- (iii) Research on rural development planning and designing appropriate development models.
- (iv) Research on conservation and utilization of natural resources based on recycling techniques.

So far, the agricultural universities of the country by and large were biased towards the progressive farmers in developing technologies. Even at the international level, the agricultural research centres/universities are developing high input agricultural technology. Roling (1988) stated that ".....the very large numbers of rural people who live in less-potential rainfed areas and who have low access to land (and other resources) seem badly placed to benefit from high input agricultural technology. Yet the high input option was the only one seriously followed by both international and national research centres. Low input technology is often seen as a second best alternative".

Now, the time has come for the agricultural universities to reorient themselves to the conditions of the rural poor and concentrate their efforts in deve-

loping "appropriate technology" for this target category. Farming System Research (FSR), on farm research, farmers participation in technology development may be the right procedure to develop appropriate technology for the resource poor farmers.

### Reorienting University Extension

With the introduction of latest rural development programme (IRDP), the university extension system has got a new set of target categories of small and marginal farmers, fishery farmers, dairy farmers, poultry farmers, etc. The extension wings of the agricultural universities have so far, followed an "innovation centred" approach (Pickering, 1987) in their transferring of technology mission. This approach has the intrinsic problem of transferring the technology, without due consideration of the farmers' circumstances. It is basically a top-town approach. The extension subsystem of the agricultural universities should shift from "innovation centred approach" to a "farmer focussed approach" in which they should consider the constraints, abilities and needs of the farmers. The extension wings of the universities have a distinct role in development and testing of appropriate technology for the rural poor particularly in bringing their problems and constraints to the attention of the research scientists. This will make the transfer of technology model a bottom-up approach.

Further, the extension wings should concentrate on "targetting technology" (Roling, 1988) for the different target categories of the rural development programmes. Roling has given seven operational steps for targetting technology :

1. Rapid rural appraisal (reconnaissance, exploratory survey or 'Sondeo' to become acquainted with range, intensities, context, problems and opportunities. Know what you don't know).
2. Identification and selection of target areas and categories ('recommendation domain' or other homogenous categories).
3. Farmer Situation Analysis (analyse constraints and opportunities of rural households, both on and off-farm, taking into account the farm and high levels of aggregation).
4. Planning and Designing technology (Linking back with specialists and scientists to develop possible solutions to farmers' problems, given their needs, opportunities and institutional environment).



5. On-farm testing and verification (trying out the technology in farm conditions, be it by research, by extension, with farmers by farmers).
6. Multi-locational field trials (trial and demonstration on a larger scale with more farmers).
7. Dissemination (Extension).

In the technology targetting process, the university extension wing, the state department of agriculture and other development departments should actively collaborate with the university research wings. The collaboration may be essential in Roling's operational steps from two to six. A proper and effective linkage between extension and research systems is essential in development of appropriate technology and/or targetting technology. McDermott (1987) also emphasised collaboration of research and extension in "technology testing", "technology adoption", and "technology integration" functions of the technology innovation process.

So far, the agricultural universities could develop effective linkage (where Training and Visiting System of extension has been introduced) with state department of agriculture only. Similar linkages must be

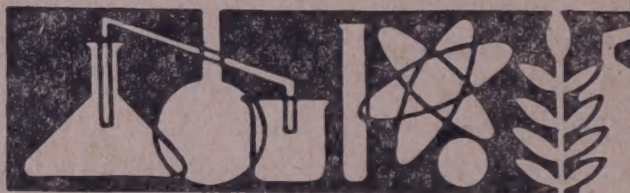
developed between agricultural departments, such as veterinary, animal husbandry/dairy, fisheries, sericulture, rural development, etc. □

#### REFERENCES

1. Arakeri, H.R. (1982) "Indian Agriculture" New Delhi, Oxford and IBH Publishing Co., pp. 257-64.
2. Mehta, R. (1984) "Rural Development Policies and Programmes: A Sociological Perspective", New Delhi, Sage Publication, p. 57-59.
3. McDermott, J K. (1987) Making extension effective: the role of extension/research linkage in W.M. River and G. Schram (eds.) *Agricultural Extension Worldwide: Issues, Practices and Emerging Priorities*, London: Croom Helm.
4. Pickering, D.C. (1987) An Overview of Agricultural Extension and its Linkages with Agricultural Research: The World Bank Experience, *River and Schram* (1987).
5. Swaminathan, M.S. (1983) "Agricultural Research Management in Developing Countries, *Agricultural Research and Education System for Development*, New Delhi, ICAR, p. 14.
6. Roling, N. (1988) *Extension Science: Information System in Agricultural Development*, Cambridge (NY): Cambridge University Press.
7. U.A.S. Bangalore, (1987) "Agricultural Education for Regional Development, and Self Employment, Monograph.



**COUNCIL OF  
SCIENTIFIC &  
INDUSTRIAL  
RESEARCH**



### **Joint CSIR-UGC Eligibility Test for Junior Research Fellowship and Lecturership, 1989.**

Advt. No. 2-29/89-E.U.II

CSIR will hold a national level Joint CSIR-UGC Test of Indian nationals, **on Sunday the 31st December 1989** for determining the eligibility of candidates for award of Junior Research Fellowship and/or recruitment of Lecturers for various Universities/educational institutions, in **(1) Life Sciences, (2) Physics, (3) Chemistry, (4) Earth, Atmospheric and Ocean Sciences and (5) Mathematics & Statistics.**

Full details regarding eligibility conditions, syllabus etc. and the application form have already appeared on **9.9.89** in the **Rojgar Samachar/Employment News** published by the **Publication Division, Ministry of Information & Broadcasting, Govt. of India, East Block IV, Level 7, R.K. Puram, New Delhi-110 066.**

Candidates who intend to appear in the aforesaid test, may send their completed application forms (for this purpose the form cut from the Employment News may be used directly or copied neatly and used) by post or deliver them by hand to the **Controller of Examinations, Examination Unit, CSIR, CSIR Complex, NPL Campus, Dr. K.S. Krishnan Marg, New Delhi-110 012** so as to reach him latest by **9-10-1989 (16-10-1989)** in case of candidates from States/regions mentioned in Para 7 of Main notification published in this regard in the Employment News dated **9.9.1989.**



# The Status of Medical Education

Discussing the present scenario of medical education and research in the country, Dr. A.K.N. Sinha, President, Medical Council of India, observed "If the Professors and Readers are not in a position to continue research work in their own fields with their own hands, the future of productive research in special fields, in a department, becomes almost sealed. It is because of this that most of our publications are sketchy, insufficiently documented and of an imitative nature, and that is why, research potentialities in our laboratories are not developing on proper lines. It is a wrong conception that the departmental research work would start only with the starting of postgraduation. Nothing could be more erroneous than this. On the contrary, postgraduation should start only after the departments have organised research activities and introduced appropriate techniques for the training of postgraduates". Dr. Sinha was delivering the Convocation Address at the 11th Convocation of the Institute of Medical Sciences of the Banaras Hindu University. Excerpts

Before independence, there were hardly 21 medical colleges in India. This number has today increased to more than 137. In the pre-independence era, annual admissions in our medical colleges hardly exceeded 1200 which has now gone beyond 15,000. The annual turn out of doctors from these medical colleges almost equalise the intake. Similarly, the pre-war number of postgraduates

these deliberations, attests to the changes. The report of the Flexner Committee in U.S.A., which came out into twenties, of the Goodenough Committee in U.K. and of the Bhore and the Mudaliar Committees in India, during and after World War II and also the various conferences on medical education, organised by the Rockefeller Foundation, World Health Organisation, Govt. of India, the Medical

## Convocation

of all categories, hardly exceeded a few hundred, from half a dozen medical centres in the country per year, which has now shot up to about 10,000 per year.

During and after World War II, there has been a complete re-orientation in medical education all over the world. The number of medical education conferences that have been held and innumerable reports that have come out of

Council of India and the Indian Association for the Advancement of Medical Education have all initiated far reaching impacts on the methodology and pattern of teaching. Shifting of emphasis from teaching to learning, emphasis on integrated teaching, training of basic doctors, teaching through audio/visual aids, emphasis on preventive medicine, maternal child care and introduction of internship, are some of the impor-

tant aspects of these deliberations. Many of these recommendations have been accepted and introduced into the medical curriculum.

In India, upto the pre-independence era, medical education has been mostly of the British type. Due to shortage of staff and inadequate development of specialities, though there had been over-training of students in certain subjects like Anatomy, the overall teaching load on the whole must have been less than what it is today. It is true that the training programme has more often been didactically oriented, but nevertheless, students have been learning many things themselves from their practical classes as well as from hospital postings. It is only in recent decades, that due to rapid expansion in medical education and frequent plannings, the students are probably being more bottle fed and also over-fed by their enthusiastic young teachers armed with recently acquired knowledge from postgraduate studies, resulting in the shifting of emphasis from learning to teaching.

In the past when the facilities for postgraduation and specialisation had been minimum, the students had been learning many things themselves and were adequately trained in basic medicine making them capable of dealing with global medical care including preventive aspects of medicine. They knew enough General Medicine and Surgery during their usual posting of 9 months each as undergraduate students and those who had the opportunity of having housejob experience of one year after graduation, were fairly equipped for launching their future career in service or in general practice, satisfactorily. The internship, as introduced at



present before full registration, does not seem to have achieved the desired result. Though the underlying principle of internship training is commendable, its execution has not proved to be very satisfactory in our set up. The original concept of internees working in District Hospitals, has not been very successful and the internees sandwiched between different categories of undergraduate and postgraduate students in the teaching hospitals, without adequate supervision, are not learning things fully satisfactorily so much so that there have been suggestions either to do away with it or to introduce a regular housemanship. In recent times, many new subjects like Cytogenetics, environmental physiology, history of medicine, Industrial Hygiene, Sports Medicine, epidemiology, statistics, medical sociology, operational research etc. etc., are being talked about to find a place in the medical curriculum, and if each one of these subjects are included in the undergraduate curriculum, an undergraduate student will be over-loaded, leading to a hotch-potch at the cost of basic medicine.

A young graduate of today, by force of circumstances, is hyper-critical and frustrated. He does not have adequate confidence to stand on his own legs, nor does he have the required faith in the authorities immediately concerned with his future.

Of late, there has been severe criticism on the standards of medical education in India. Dr. Tessor Richard in an article published in British Medical Journal of 13th April, 1985 commented that the standard of medical education in India is declining and that the undergradu-

ate curriculum is inappropriate. Our national leaders have also been critical about the quality of medical education in the country as it fails to meet the needs of our own people. Frequent changes in the educational policies, proliferation of new medical colleges especially in private sector, counting of day to day assessment marks in University examinations and multiplication of universities, in spite of inadequacy of experienced staff, serving hardly any purpose, are some of the examples of our craze for introducing newer ideas and changes in imitation of other countries without adequate preparatory planning. These have subscribed to a progressive fall in standard in all branches of studies.

Further, the capitation fee medical colleges do not follow any rules and regulations and majority of them completely lack in the physical facilities for imparting medical education. In a period of last 5 years such 19 medical colleges have been opened in most of the States and inspection of these medical colleges has revealed that they are totally unsuitable for imparting medical education and thus have not been approved by the Medical Council of India. Even in the older well established medical colleges the number of admissions has been disproportionately increased by the State Governments mainly on political reasons. All this have resulted in admission of students with poor background and improper selection of staff leading to the production of sub-standard medical graduates who, by and large, lack missionary spirit and do not serve any useful purpose for the health care of our people. Further the career of a student from private unrecognised medical college is in dark because in absence of registration of the graduates from these colleges, their

future remains in doleddrum.

In advanced countries, after a thorough basic training, majority of the students go in for different types of technical training and a comparatively smaller numbers opt out for University education. This itself functions as a safety valve device for selection, as only good students, of their own accord, opt out for higher education. This is not the case in India. As a result of this and as a result of increase in the number of admissions in professional institutions, sub-standard students are being admitted in medical colleges and other professional institutions, who are not normally suited for these studies. Majority of them neither select their own career, nor have any avocation for medicine and the career is thrust upon them by their parents. This is not an ideal condition. A large number of such students lack initiative and grit for excelling in their studies and gradually develop vicarious short-cut methods for achieving their ends. It is a known fact that in a class or an institution, if a sizeable number of students is much above the average, some percentages of weaker students also improve in that atmosphere, but if it is the opposite, the converse is the result. This leads to acts of indiscipline, rowdiness and all the rest that we are observing these days from intrinsic and extrinsic factors.

What applies to the students, equally applies to the staff and because of the 'demand' and 'supply' position, selection of staff, in most fields, has become very defective. A bad doctor may harm some of his patients but a bad teacher creates hundreds of bad doctors, which is worse than the former. Further, if the students lack in initiative, quite a number



of teachers do the same and rely more upon automatic promotion by mere seniority, rather than striving to deserve it by attaining efficiency.

This is a lamentable state of affair and will affect the future of medical education adversely if things are not rectified at this stage. The profession of teaching is a noble one. It demands knowledge, intrinsic goodness, dedicated work and concern about the welfare of the students for commanding respect and moulding their character. A teacher has to be respected, not in terms of money he earns, but from the quality of his heart. As in the case of students, here also a selection is essential. He has to be brought up in an atmosphere of loyalty, justice and encouragement. If we do not pay heed to all these, he does not grow in a congenial manner and takes recourse to other measures for success than work, as people of other professions are doing. Education, Science and Technology have to be zealously guarded against politics but unfortunately today political science is growing so exorbitantly like the immortal golden creeper dodder, that it has started throttling all other attributes that constitute an individual's character and culture. After independence we ought to have given special attention to retaining of our acquired character and further improve upon it, as a pre-requisite for our nation building work.

Medical education is a complex subject and of late, has developed into a speciality in advanced countries. It involves thinking, planning and understanding of medical educational problems, pertaining to this training of the students, building up their character and health, inculcating

a high sense of service and discipline in these future custodians of medical care of the nation. It also involves medical research according to the need of the country and organisation of teaching and research programmes soundly and economically. The work being of a technical nature, for successful realisation of medical research programme in a country, ideas of those who have experience in this field should be given due weightage.

Proper development of medical colleges is the work of medical educationists who have knowledge of medical education, research, selection and admission of students, staff and matters pertaining to the advancements of an institution. The Deans and the Professors have to play a more important role, than at present, in the welfare of their institutions and the planning for their advancement has to be from the periphery to the centre, from the institution to the Directorate and from there to the Government. If this is not appreciated and fully implemented very little will come out of the present efforts, in spite of heavy drainage on our tottering finances. Thus it is apparent that the reforms in medical education are necessary so that a medical graduate is fully equipped with the knowledge and competence to settle in practice. The existing shortcomings of the Indian pattern of medical education lures a young medical graduate to hanker after postgraduation and the M.B.B.S. degree is looked upon as a feeder degree.

The postgraduate medical education in our country has increased indiscriminately and today all the 106 medical colleges, recognised by the Medical Council of India, are conducting postgraduate courses even though he

may not satisfy the minimum requirements for undergraduate training. This is a very sad state of affair and requires even greater consideration than undergraduate medical education because with the postgraduate degree one is entitled to be appointed as a teacher in a medical college. Once appointed as a teacher he gets automatic promotion to the post of Reader and Professor after acquiring teaching experience of 5 and 4 years respectively. This time bound promotion does not take into consideration the qualities which a teacher is required to possess. Much more is required from a teacher than just to possess a postgraduate degree. The teacher should make a clear decision regarding the purpose of his lecture, its significant background experience and the level of learning of the students, limitation of time and should be thoroughly familiar with the information to be conveyed and its relevance to the subject. It should promote just selection, careful analysis and thoughtful synthesis of pertinent information drawn from many sources and should provide an opportunity for stimulating those students for clarification of different concepts over and above providing necessary information.

There should be more emphasis on stimulating self learning by the students. Apart from anything else, there should be sufficient laboratory and library facilities. Prepared charts, audio-visual aids, and programmed instructions should find due place in the training methods.

The postgraduate medical education requires careful academic thought and planning. High standards are an absolute pre-requisite, as this would provide a sound basis and cater for the



future teachers, research workers, specialists and leaders of academic progress. The selection of student should be made purely on merit. The academic record in all the stages of professional training and assessment should be the chief criterion for selection. The emphasis should be for residency and inservice training. The postgraduate should be full-time students in the department. Periodic internal assessment should be done and the performance report should be taken into consideration in the final assessment. Critical study or thesis trains the students in research methodology. This provides the candidate with the necessary background of training in research methods and techniques along with the art of presenting research papers and the use of library and scientific reference material.

The students should be required to participate in the teaching and training programme of undergraduate students and interns and should be given responsibilities in the management and day-to-day treatment of the patients. Every postgraduate department should satisfy the minimum requirement for undergraduate training in addition to the strict necessary criteria for the postgraduate training centre. The postgraduate teachers must satisfy the criteria laid down for their appointment and their performance as teachers should be periodically reviewed for future promotions.

The specialities could be grouped as basic sciences, broad specialities and higher specialities depending on the background and basis of knowledge required for each. The assessment and evaluation procedures should be thorough and searching.

The postgraduate research that is being carried out in the country these days, refer particularly to thesis work by the candidate, enquiries from research organisations and some work by the individual staff members. On an analysis of this work and the publications therefrom made, it is clear that not many senior members of the rank of Professors and Readers, carry out research investigations with their own hands. It is a collective research in which the most important person, rightly equipped or otherwise, is the junior-most postgraduate. With expanded medical education, it is a fact that a candidate without much research to his credit even becomes a Professor. If the Professors and Readers are not in a position to continue research work in their own fields with their own hands, the future of productive research in special fields, in a department, becomes almost sealed. It is because of this that most of our publications are sketchy, insufficiently documented and of an imitative nature, and that is why, research potentialities in our laboratories are not developing on proper lines. It is a wrong conception that the departmental research work would start only with the starting of postgraduation. Nothing could be more erroneous than this. On the contrary, postgraduation should start only after the departments have organised research activities and introduced appropriate techniques for the training of postgraduates. The problems of thesis, as well as other investigations, should be carefully selected and worked out and the findings exposed to the staff meetings at regular interval of atleast once a month, by rotation at the institutional level. This will not only be instructive for others but healthy discussions by all concerned,

would also improve the quality of work. How curious it appears now that in spite of expanded medical education and postgraduate research, we have hardly any idea of what thesis work is being carried out or has been carried out in other universities excepting the little information obtained through some of their publications ?

The research work that is being carried out in different institutions, is mostly of thesis type, which is often inadequately supervised, thus having limited value in the field of science. The facilities offered by the Indian Council of Medical Research and other organisations, are not being adequately utilised and with the exception of a few, no long range planning of research is being carried out.

Universities have a special role to play in medical education and research. It may be necessary for the universities to go into details of training methods, encompassing all facets of teaching and research programmes in the interest of playing a fruitful role in the present day medical education. The universities are the highest intellectual academic centres in the country and they should help in planning and shouldering responsibility for promoting intellectual revolution in the field of medical and allied sciences.

Of late, a peculiar orientation in the Government attitude is being observed in respect of organisation of universities, as well as, medical colleges. The Vice-Chancellors always used to be veteran educationists in the past. But recently, other considerations are prevailing in their selection. Similarly, the Deans of the medical colleges used to be the senior



professors on selection basis and not in seniority. There are States now, in which, Deans have been appointed from the service cadre without having a day's experience as a medical educationist. Whatever might have been the reasons for this orientation, the result of this is being seen on the standards of education, in the recent period !

Coming to the curriculum, I am of the view that there is nothing fundamentally wrong with the curriculum as it exists today. A certain amount of change in the approach is necessary both in the method of teaching and the emphasis laid in the various subjects taught. Stress will have to be laid on the community aspects of medicine and the day-to-day problems met with in health and

disease. This would require much more supervision of the training of the students by their teachers. Small group teaching both at the bedside in the wards, in the out-patients, in the emergency services and casualty services as well as in the primary health centres, both urban and rural, has to be carried out. This would essentially mean that the number of qualified and experienced teachers in the medical colleges would have to be increased. For, without this basic requirement it would not be possible for the present day methods of teaching by way of seminars, group discussions, tutorials etc., to be carried out. It may also be necessary that the teachers in the medical colleges should have a course in medical pedagogics to enable them to appreciate the new

problems in relation to education in general and medical education in particular. There should be much more co-ordination between various departments so that the preventive and community aspects of medicine are taught under all disciplines and a more practical bias and a clinical outlook given to the students rather than make them fully dependent upon the laboratory and the radiological reports for making their diagnosis.

As far as medical education is concerned it is necessary that the medical men should have a final say in the matter. Every care must be taken to see that the standards of our medical education are maintained at the highest level and do not go down because of interference by politicians. □

## INTER VARSITY YOUTH FESTIVALS 1989-90

Zone	Venue	Dates	Name of Cultural Coordinator
North	Panjab University Chandigarh	Oct. 2-6, 1989	Dr. I.S. Dhillon Director, Youth Welfare Panjab University Chandigarh 160014
West	Rajasthan Agril. Univ. Bikaner	Oct. 11-15, 1989	Dr. (Mrs.) P. Sundaram Dean, College of Home Sciences, Rajasthan Agril. University, Udaipur
South	University of Mysore Mysore	To be announced	Shri B.K. Shivanna Director, Students Welfare University of Mysore Maharaja's College Centenary Building Mysore 570005
East	Banaras Hindu Univ., Varanasi	Nov. 10-14, 1989	Dr. P.K. Tikkoo Dean of Students Banaras Hindu University Varanasi 221 005
National	University of Roorkee, Roorkee	To be announced	Dr. P.C. Mohan Professor in Earth Sciences University of Roorkee Roorkee 247667 (U.P.)

For further details : Contact the respective Cultural Coordinators or Shri Sampson David,  
Cultural Officer, Association of Indian Universities, AIU House, 16 Kotla Road, New Delhi 110002



# University-Industry Symbiosis

Mrs. Kumudben Joshi, Governor of Andhra Pradesh, called for greater interaction between educational institutions imparting higher education and industrial sector so that the students, particularly those studying professional courses were exposed to practical working atmosphere. She was inaugurating a workshop on university-industry symbiosis organised by Jawaharlal Nehru Technological University (JNTU) at Hyderabad recently. Mrs. Joshi said that the educational institutions and industries should work with utmost coordination and plan out and produce skilled manpower to cater to the growing needs.

Stating that it was not possible for universities nor the industrialists to work in isolation. Mrs. Joshi said that industries should be in constant touch with the educational institutions and prepare a list of manpower needed.

Dr. D. Swaminadhan, Vice-Chancellor, JNTU in his talk on 'a model for university-industry symbiosis' said that technological education and research had to be developed around the requirement of the industry and the emerging areas of technology. Unfortunately in India, the University system and industry have run on parallel lines, he said.

The foundation to the technological university's meaningful role could be laid only when a symbiotic relationship with the industry was developed. This required re-orientation of university curriculum, exchange of experts between teaching institutions and industries, involvement of teaching staff in industry, university as a consultant in research and development, in-house

training programmes, involvement of university right from the project appraisal stage, etc.

Dr. Swaminadhan suggested that the university be a source for information and advice on technology choice by keeping a constant tab on industry and an updated database. The university should become a clearing house for all information on the technological developments taking place in the country.

The action plan to convert these dimensions and aims into achievements would have to spread over many phases. There was need for creation of a body to promote and coordinate university - industry linkages. In this direction the industrial consultancy services unit (ICS) of JNTU had been restructured and redesignated as Bureau for Industrial Consultancy and Research and Development (BICARD).

Dr. Swaminadhan said efforts were on to prepare a comprehensive directory of technology experts in different fields of technological expertise and knowhow. The plan provides for JNTU to associate with State Government bodies like the State Financial Corporation and Andhra Pradesh State Industrial Development Corporation. It also provides for reviewing post-graduate and graduate curricula and reorient these to meet needs of industry and for faculty training in industry.

Prof. B.H. Brij Kishore, Dean of the University, said that just as medical colleges were attached to hospitals, engineering colleges should be attached to industries. There was urgent need for inter-

action between the two in the context of modernisation.

## Refresher Course in Economics

The Academic Staff College of the Jawaharlal Nehru University (JNU) recently organised the first Refresher Course in Economics. Over 50 colleges and university teachers from all over the country attended the course which covered areas in economic theory and analysis including topics on development and planning in India.

Inaugurating the course, Prof. M.S. Agwani, Vice-Chancellor, said the main idea of such courses at JNU is to provide a stimulant which is very essential for those teaching economics in colleges and universities. The effort is to create awareness among the participants that one has to reorient oneself in order to acquaint the students with the latest on the subject.

The eminent Economist and Member, Planning Commission, Prof. Y.K. Alagh delivered the first lecture on "Planning and Economic Development in India" covering agricultural and industrial development, resource mobilisation and major thrust of policy changes. He dwelt at length on major issues in agriculture.

## Academic Linkage

The Andhra Pradesh State Council for Higher Education, it is reported, will soon establish an 'academic linkage' with Loughborough University in the United Kingdom to improve the quality of higher education in the State. According to Dr. Andrew Wilson, Director of Staff Training and Development at Loughborough University, the linkage is expected to provide for the exchange of



academic staff between India and the UK and thereby help develop expertise in areas such as training of university teachers, audio visual techniques, and the management of higher education.

Referring to the standard of higher education in the State, Dr. Wilson said 'there are clearly areas where the work is as good as any where else in the world'. The need is to bring all areas upto those high standards, he added.

Prof. G.J.V. Jagannatha Raju, Chairman of the State Council for Higher Education, said the State Council would identify areas and priorities for the linkage soon in consultation with the Laughtborough University.

### **Attendance Rules Revised at Bangalore University**

The Academic Council of Bangalore University has stipulated a minimum attendance of 75 per cent of working periods in each subject during each academic year for students of the B.A., B.Sc. and B.Com. degree courses. It made it mandatory for college principals to notify the attendance of each student twice in the first and second term. The Vice-Chancellor could, however, condone shortage of attendance up to 15 per cent in extraordinary circumstances on the recommendations of the heads of institutions / departments of the subject concerned.

The Council decided to work out a strategy to comply with the UGC guidelines which specified that the university and colleges should work for a minimum of 200 actual teaching days. At present 180 actual teaching days were put in and hence a six-day week may have to be introduced to abide by the UGC guidelines

For admission to the M.Sc. Sericulture course, the council resolved to reserve 90 per cent seats for candidates holding a B.Sc. degree with sericulture as an optional subject and 10 per cent seats for candidates with a CBZ combination. The Board of Studies in Sericulture had earlier recommended reserving 75 per cent for sericulture graduates and 25 per cent for students from allied faculties. The meeting rejected an amendment tabled on the reduction of minimum marks for admission to the postgraduate diploma course in sericulture from 50 per cent to 45 per cent "in the interest of maintaining academic standards." It also rejected the plea of postgraduate external students to extend the time for completion of examination to five years from the present four years.

The Council resolved to start an M.Sc. (Electronics) course from the next academic year with assistance from the UGC and the Department of Electronics. The course would be conducted by the Department of Physics. It also resolved to consider the introduction of a Military Science (Defence Studies) course at the undergraduate level from the next academic year.

### **Panel Recommends Rs. 250 Cr. for Bihar Varsities**

The five-man committee of Human Resources Development Department set up by the Bihar Govt. is reported to have recommended a provision for an annual grant of Rs. 115 crore for 1988-89 and Rs. 122 crore for the current year to different universities of the state besides an additional grant of Rs. 14 crore to meet additional liabilities for implementation of revised UGC pay-scales. This was

revealed by the Chairman of the committee, Mr. Krishna Bahadur, who met the Chief Minister Mr. S.N. Sinha recently in Patna.

The committee informed the Chief Minister that the statutory grant of Rs. 3.20 crore sanctioned in 74-75 has not been revised. The committee emphasised the need to revise this grant to enable the universities to receive grants through the Accountant General of Bihar.

The committee advised the Chief Minister to introduce quarterly payment system to universities instead of monthly system as the grant released each month is spent over payment of salaries to the teachers and other employees consequently the outstanding dues remain unliquidated and the universities have to pay heavy amount to the banks as interest of their overdrafts.

### **TWAS Award for Prof. Swarup**

Prof. G. Swarup, a Senior Professor at the Tata Institute of Fundamental Research (TIFR), has been awarded the Third World Academy of Sciences 1988 Award, in Physics, for his distinguished contributions to radio astronomy and cosmology. Prof. Swarup established a first rate experimental group in the field of radio astronomy at the TIFR. He was responsible for the Ooty radio telescope and established an angular size flux density relation for extra galactic radio sources which was found to be of considerable cosmological importance and provided an important support to the Big-Bang model.

With the construction of the Ooty synthesis radio telescope many interesting investigations



such as studies of giant radio galaxies, cluster of galaxies, supernovac remnants, galactic plane survey and so on are being carried out.

### Dr. K.G. Naik Medal

Dr. Paul Ratnasamy, Deputy Director and Head of the Inorganic and Materials Chemistry Division of National Chemical Laboratory (NCL) has been awarded the Dr. K.G. Naik gold medal for the year 1988 by the Maharaja Sayajirao University of Baroda in recognition of his meritorious contributions to the field of catalysis and catalytic reactions.

The gold medal is awarded annually to a scientific research worker in India, in the field of chemistry, whose contributions to published research in the five years prior to the award have found or are most likely to find applications in developing Indian industries.

### Alagappa University Celebrates Literacy Day

In order to fulfil the three dimensional roles of the university i.e. teaching, research, training and extension, the Department of Education, Alagappa University, has started M.A. Adult and Non-formal Education and research courses with interdisciplinary approach. As a part of extension work, the Department is concentrating on field programmes. On 8th September, the department celebrated the International Literacy Day—1989 in a remote village, namely, Iluppakkudi with the objective of involving the rural masses in nation building activities. The staff, post-graduate students and research scholars participated in this programme.

The students and staff interacted with villagers and explained to them the need for literacy to solve

their own problems themselves. They also stressed the importance of literacy for development, women literacy, nutrition, health and sanitation, small family norms, etc. The students of M.A. Adult and Non-formal Education also organised an exhibition on this occasion. They demonstrated the different government development programmes, need for literacy, nutrition, health and sanitation, dangers of drug addiction, gambling, untouchability, dowry, equal rights for women, rights and duties of the people in the pictorial form through charts, posters, models, flannel graphs, etc. to the community people.

### M.A. in English Language

The Madurai Kamaraj University has introduced a two-year post-graduate course in "English Language Studies" from the academic year 1989. The course aims at grammatical and communicative

competence of students and interpretative skills through the core papers, and training them in professional aspects of English language teaching, media areas, etc. through the optional courses. A special feature of this course is the study of another language—Indian or foreign—to give to the students an insight into the processes of language acquisition by adults. The course also emphasizes practical skills with projects compulsory for each paper. Some projects are linked directly to the needs of the society and national reconstruction such as the National Literacy Mission (NLM). The eligibility condition for admission to the course is four semesters of compulsory General English Course at the undergraduate level.

The course is interdisciplinary with areas such as media, translation, communication theories, women's studies, creative use of language, etc. included under the optional papers.

## News from Agril. Varsities

### New Plant Growth Regulators

The Punjab Agricultural University (PAU) has developed new plant-growth regulators in its Chemistry Department. This was revealed by Dr. P.S. Kalsi, Professor and Head of the Department of Chemistry while delivering the inaugural lecture on the occasion of establishment of the Local Chapter of Indian National Science Academy (INSA) at PAU. Dr. Kalsi said that from Indian aromatic and medicinal plants for the first time as high as 27 per cent increase in wheat yield under unirrigated conditions had been achieved with the use of these chemicals. The experiments conduc-

ted to see the effect of these new growth regulators on productivity at the University had shown encouraging results both in wheat and rice. He asserted that there was a possibility to further increase the yield of these crops with the help of these new regulators. He explained that some of the common weeds including parthenium and nut grass are being gainfully used in the Chemistry Department to synthesise new growth regulators. He was hopeful that future work in this area could lead to the development of new plant growth regulators, so vital for the agricultural economy of the country.



Dr. B.S. Dhillon, Dean of the Postgraduate Studies of the PAU in his presidential address emphasized the need for inter-disciplinary approach in the research relating to growth regulators. He stressed that young scientists should be actively involved in various research projects.

Earlier, Professor S.S. Goraya,

Convener of the Local Chapter and Fellow of Indian National Science Academy (INSA) highlighted the objectives of the local Chapter. He said this chapter will provide a forum to the Scientists of different disciplines to share their research problems so as to make maximum use in increasing the agricultural production.

teaching efforts of the governments and organisations.

## News from Abroad

### Objectives for International Literacy Year

The United Nations General Assembly in December 1987 adopted a resolution proclaiming 1990 as the International Literacy Year and inviting UNESCO to assume the role of lead organisation for its preparation and observance. The objectives of International Literacy Year are :

(i) increasing action by the governments of Member States affected by illiteracy or functional illiteracy to eliminate these problems, particularly through education in rural areas and urban slums, in favour of women and girls and among populations and groups having special educational problems and needs;

(ii) increasing public awareness of the scope, nature and implications of illiteracy as well as the means and conditions of combating it. In particular, an effort should be made to alert public opinion to the rate of illiteracy among women and its implication for the well-being of their children, the lower rate of school attendance among girls than among boys and the connection between illiteracy, on the one hand, and poverty, under-development and economic, social and cultural exclusion on the other;

(iii) increasing popular partici-

pation, within and among countries, in efforts to combat illiteracy, particularly through activities of governmental and non-governmental organizations, voluntary associations and community groups;

(iv) increasing co-operation and solidarity among Member States in the struggle against illiteracy;

(v) increasing co-operation within the United Nations system and, more generally, among all intergovernmental and non-governmental organizations in the struggle against illiteracy;

(vi) using International Literacy Year for launching the plan of action for the eradication of illiteracy by the year 2000 and for addressing issues of critical importance for the progress of literacy, such as reducing the number of primary school drop-outs and establishing post-literacy programmes to prevent relapse into illiteracy.

One of the main goals of International Literacy Year is therefore to lay the foundations for long-term action, to create conditions favourable to the launching of a plan of action for the decade, from 1990 to the end of the century, by mobilizing international public opinion in support of the literacy

### Prof. Mangla Re-elected

Prof. P.B. Mangla of the Department of Library and Information Science, University of Delhi has been unanimously re-elected as Vice President of the International Federation of Library Associations and Institutions (IFLA) for another term of two years. IFLA, as the largest and oldest professional organisation at the international level in the field of libraries, documentation and information with



Prof. P.B. Mangla

membership from about 125 countries, has been playing a dynamic role in the spread of literacy, promotion of research and academic activities and in bringing about national integration and social harmony with particular emphasis to the developing countries.

Prof. Mangla is the first Indian to represent India and the Third World in the IFLA Executive Board and his presence should be of help in the development of libraries and network systems in India and the Third World.



# News from UGC

## INSAT 1-B Programme of UGC

Between 3rd October to 9th October, 1989 the following schedule of telecast on higher education through INSAT 1-B under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 12.45 p.m. to 1.45 p.m. and 4.00 p.m. to 5.00 p.m. The programme is available on the TV Network throughout the country.

### 1st Transmission

12.45 p.m. to 1.45 p.m.

3.10.89

"The Basics : Creative Thinking in the Classroom"

"Ayurveda : Self Sufficient-IV—Sushruta and Surgery"

4.10.89

"Eyes in the Sky—Remote Sensing—I"

"Meet an Architect"

"Discovering Snakes"

5.10.89

"Power Supplies"

"The Jodhpur Sandstone—II"

"Learning a Foreign Language—II"

6.10.89

"Vedic Mathematics—III"

"Political System in India"

"Arid Zone Ecology Phase—I : Solar Energy Appliances"

7.10.89

"Music of North India—Vijay Raghava Rao"

"Basic Camera Controls"

"The Art of Cartooning—I"

8.10.89

No Telecast

9.10.89

"Lasers—II"

"Objectives of Commerce Education"

"Mushrooms"

### 2nd Transmission

4.00 p.m. to 5.00 p.m.

3.10.89

"The Basics : Basic Thinking Skills"

"To Enable"

4.10.89

"Fastening Devices"

"Guangsheng Monastery"

"How to Bite a Mosquito"

5.10.89

"Diode and its Characteristics—I"

"The Global Weather Experiment—Whole Earth View"

"Asian and Western Comparative Literature"

6.10.89

"NASA At Work—XIV : Life in the Universe Between Atoms & Stars"

"Fathomless Folklore"

"The Serene Sholas"

7.10.89

"Jing De-Zhen, China's Porcelain"

"Holi Folk Dances of Rajasthan"

"Mail—I"

8.10.89

No Telecast

9.10.89

"Inflation in the Universe"

"Banking Instruments"

"High Productive Ber Cultivation"

### We Congratulate

1. Mr. K.S. Dhillon who has been appointed Vice-Chancellor of the Barkatullah Vishwavidyalaya, Bhopal.

## The Call of Hockey

*The Call of Hockey loud and long,  
The beckoning of the Olympic gold,  
The biting of the dust by foe,  
The music of the sounding board.  
Dodge dribble and dash ahead my love,  
The ball glu'd to your magic wand,  
The lightening flash of your final flick  
The wizardry that the mind does haunt.  
The victory, you thunder once roll'd around  
The world, the nations fled for life,  
Your sweetly, darling longs to see,  
The lusive gold recrown the strife.*



# CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be Contacted
Oct. 3-5, 1989	3-day Seminar on Microbes in the Service of Human Society	Topics for discussion include Microbes as source for feed & food, Biofertilizers in the service of human society, Viruses and cancer, Teaching of Microbiology in Indian Universities, etc.	Society of Microbiologists of Delhi	Dr. R.K. Saxena Deptt. of Microbiology, Univ. of Delhi South Campus, Benito Juarez Road, New Delhi-110021
Oct. 13-15, 1989	National Symposium on Environmental Management Strategies for Pathogenesis in Parasitic Diseases	To discuss economic significance of parasitic diseases in fish, biological control of pathogens and environmental interactions, disease prediction hypothesis & management of transmission dynamics	Department of Zoology, University of Allahabad, Allahabad	Dr. Sandeep K. Malhotra Convenor, Post-Box No. 2010, Parasitology Laboratory Department of Zoology University of Allahabad Allahabad
Oct. 16-18, 1989	Fourth Annual National Convention of Indian Association of Physics Teachers (IAPT)	To discuss Physics Teaching at the Undergraduate level	Govt. Science College, Raipur (M.P.)	Shri M.G. Tarnekar, Convener C/o Department of Physics, Govt. Science College, Raipur-492010.
Oct. 20-22, 1989	National Symposium on Dynamism in Chemical Reaction	Proposed topics include Energetics, Dynamics and Reaction Kinetics; Catalysis; and Chemical Monitoring of Environment Pollutants	Atarra Postgraduate College, Atarra, Banda (U.P.)	Dr. R.K. Shukla Head, Department of Chemistry. Atarra P.G. College Atarra, Banda (U.P.) 210201
Oct. 27-28, 1989	All India Seminar on Construction Management	Proposed topics include construction materials, construction techniques, Work site organisation, Safety Engg. and Role of Computer in Construction Management	Civil Engineering Department, Thapar Institute of Engineering & Technology, Patiala	Dr. C.B. Kukreja, Prof. & Coordinator, All India Seminar on Construction Management, Deptt. of Civil Engineering, Thapar Instt. of Engg. & Tech., Patiala-147001 (Punjab)
Dec. 4-7, 1989	International Conference of Engineering Software	To deliberate on the recent advances in the software development and associated computational methods for specific engineering applications	Indian Institute of Technology, Delhi	Prof. C.V. Ramakrishnan, Head, Deptt. of App. Mech. IIT, Delhi, Hauz Khas, New Delhi-110016
Dec. 13-15, 1989	13th National Systems Conference—1989	To bring out the various systems methodologies as applied to Engineering, Industrial Economics, and social problems]	Department of Electrical Engineering, IIT, Kharagpur	Prof. M.K. Ghosh, Department of Electrical Engineering, Indian Institute of Technology, Kharagpur-721302



# Post Graduate Institute of Medical Education & Research, Chandigarh

## ADMISSION NOTICE NO. 8/89 (Acad)

Applications on prescribed form are invited for the following postgraduate/post-doctoral courses etc., for the academic session starting from First January, 1990 :

### I. FIRST YEAR JUNIOR RESIDENTS (52) (for MD/MS Courses) in the following subjects :

#### (a) CLINICAL GROUP—44

Anaesthesia (6), Dermatology (1), ENT (1), Medicine (11), Obstt. & Gynae (5), Paediatrics (1), Ophthalmology (3), Orthopaedic Surgery (4), Radio-diagnosis (1), Radiotherapy (2), and Surgery (9).

#### (b) PARA-CLINICAL GROUP—8

Microbiology (1), Pathology (2) and Pharmacology (5)

(i) Those completing their internship after 31.12.1989 are not eligible.

(ii) In the clinical group candidates can apply for a maximum of two subjects only. There is no such restriction for para clinical group. Only one application, needs to be submitted. The choice of subjects be mentioned in relevant column of the application. Application fee is Rs. 60/- per subject.

(iii) 22½% of seats in each of the above mentioned groups are reserved for candidates belonging to Scheduled Castes/Tribes. In addition, 5% seats are reserved for candidates who have served or are serving or have carried on private practice in rural areas for a minimum of two years.

(iv) A Limited number of sponsored/deputed candidates may also be accepted for the courses mentioned above as also for MD (Psychiatry) Course.

### II. SENIOR RESIDENTS—12 (for DM/M.Ch. Courses) in the following subjects :

D.M.		M.Ch.	
Cardiology	—1	Neuro Surgery	—3
Clinical Pharmacology	—1	Plastic Surgery	—2
Gastroenterology	—2		
Neurology	—1		
Pulmonary Medicine	—2		

(i) The post of Senior Resident for DM (Clinical Pharmacology) and one post of Senior Resident for each of the courses for DM (Pulmonary Medicine) and M.Ch. (Neuro Surgery) are reserved for candidates belonging to Scheduled Castes/Tribes.

(ii) A limited number (1-2) of sponsored/deputed candidates may also be accepted in the all subjects mentioned above as also for D.M. Nephrology, M.Ch. Cardiothoracic Surgery, Paed. Surgery and Urology.

(iii) Upper age limit 1.1.1990 not more than 35 years for general candidates and 40 years for candidates belonging to Scheduled Castes/Tribes and for ex-servicemen and Commissioned Officers including E C O /S S C.Os., released on satisfactory completion of assignment (including those whose assignment is due to be completed within 6 months). No upper age restriction for deputed/sponsored candidates.

(iv) Candidates due to appear in MD/MS examinations during Nov., Dec., 1989 can also apply. They will be admitted to the entrance test only if they supply the result of their examination from the University concerned atleast a day before the entrance test.

### III. Ph.D. PROGRAMME

Vacancies exist in the following Department :

Anaesthesia, Biochemistry, Biophysics, Dermatology, Experimental Medicine, Endocrinology, Gastroenterology, Hepatology, Immunopathology, Microbiology, Obstt. & Gynae, Paediatrics, Pharmacology, Parasitology, Psychiatry (including Clinical Psychology) Pathology and Virology.

### IV. Second year Junior Residents—2 for M.D.S. Part I Course in the speciality of Orthodontics.

### V. M.Sc. Pharmacology

### VI. Diploma Course in Immunohaematology and Blood Transfusion.

### VII. Certificate Course in Critical Care Medicine.

### VIII. M.Sc. Medical Technology (Pathology) with Cytology or Haematology or Immunopathology as a special subject.

### IX. M.Sc. Medical Technology (Microbiology) with Bacteriology or Parasitology or Virology as a special subject.

### X. M.Sc. Medical Technology (Pharmacology and Physiology).

### XI. M.Sc. Medical Technology (Radiology) with Radio-diagnosis or Radio-therapy as a special subject.

### XII. First Year Junior Residents : 2 for the Department of Dentistry for a period of 6 months One post is reserved for Scheduled Castes/Tribes. Those who have already completed or will complete First Year Junior Residency or House Job for one year by 31.1.1990 are not eligible.

## GENERAL INFORMATION

1. For all courses etc., where MBBS or BDS or MD/MS is an eligibility requirement, candidates who have made more than one attempt during their MBBS/BDS course are not eligible. However, those belonging to Scheduled Castes/Tribes with upto two attempts in their MBBS/BDS career will be eligible.

2. Those applying for the reserved seats, must append, with their applications, a certificate from the District Magistrate concerned in support of their claim. No other certificate will be entertained.

3. For courses at categories VI to XI above only sponsored/deputed candidates will be considered.

4. Courses at categories IV & V are under the Panjab University.

5. The number of seats wherever indicated is provisional and is subject to change without prior notice.

6. The application must be accompanied with non refundable fee of Rs. 60/- in the form of postal order drawn in favour of the Director for each of the courses mentioned above. A candidate applying for more than one subject/course is required to submit separate application, complete in all respects, for each subject/course, except for category No. 1.

7. Application form and detailed information are available from the office of the undersigned either personally on working days (except Saturdays) or by post for which the request must be accompanied with a self addressed envelope size (23 x 10 cms) bearing postage stamps of Rs. 4.50 and crossed postal order for Rs. 20/- drawn in favour of the Director.

CLOSING DATE OF RECEIPT OF APPLICATION IS 24th Oct., 1989.

REGISTRAR



# AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

- The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

## RESEARCH IN PROGRESS

### A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

#### PHYSICAL SCIENCES

##### Mathematics

1. Bhola, Pravin Kumar. *Some problems in fixed point theorems*. HS Gour. Prof. P.L. Sharma.
2. Manoj Kumar. *Theology and computer applications*. BHU. Dr. A. Saxena, Department of Applied Mathematics, Banaras Hindu University, Varanasi.
3. Ravi Shankar, R. *Operations research*. Kerala. Dr. S. Madhavan, Prof., Department of Mathematics, University College, Trivandrum.

##### Physics

1. Haile, Tigistu. *Wave emission and instabilities in astrophysical plasma*. BHU. Prof. K.D. Mishra, Department of Applied Physics, Institute of Technology, Banaras Hindu University, Varanasi.

##### Chemistry

1. Arora, Rekha. *Some novel mechanistic and synthetic investigations using electron transfer reagents with emphasis on sodium ditronite and lar*. Delhi. Dr. J.M. Khurana, Department of Chemistry, University of Delhi, Delhi.

2. Saini, Sunitra. *Photochemistry of quinones*. Delhi, Prof. R.N. Knanna, Department of Chemistry, University of Delhi, Delhi.

3. Sharma, Kamendra Kumar. *Transition metal complexes of biological relevance*. Delhi. Dr. Pawan Mathur, Department of Chemistry, University of Delhi, Delhi.

4. Srivastava, Rajesh Kumar. *Inorganic chemistry: Studies on coordination compounds of transition metals*. BHU. Dr. H.P. Srivastava, Department of Chemistry, Banaras Hindu University, Varanasi.

5. Sushma Kiran. *Studies in heterocyclics*. Delhi. Prof. V.K. Ahluwalia, Department of Chemistry, University of Delhi, Delhi.

##### Geology

1. Nanda Kumar, V. *Petrology, fluid inclusions and metamorphic history of cardierite-bearing granulites of Southern Kerala—India*. Kerala. Dr. M. Santhosh, Scientist, Centre for Earth Science Studies, University of Kerala, Trivandrum.

##### Engineering & Technology

1. Singh, Amarnath. *Synthesis and sintering of ceramic super conductors*. BHU. Dr. V.K. Singh, Department of Ceramic Engineering, Institute of Technology, Banaras Hindu University, Varanasi.



## Biology

1. Dube, Alok. *The physiological and biochemical effects of cobaltous ions on light mediated anthocyanin synthesis.* Devi Ahilya. Dr. M.M. Loloraya, Head, School of Life Sciences, Devi Ahilya Vishwavidyalaya, Indore.

## Microbiology

1. Meenattor, Girija. *Immunoregulation in squamous cell carcinoma of the oral cavity.* Kerala. Dr. M. Krishnan Nair, Director, and Dr. Prabha Balaram, Assoc. Prof., Regional Cancer Centre, Trivandrum.

## Botany

1. Amitav. *Microbial ecology.* Delhi. Dr. P.D. Sharma, Department of Botany, University of Delhi, Delhi.

2. Kamal Krishan. *Ultrastructure and some biological aspects of chloroplast proteins in spinach and pea.* Delhi. Prof. Manohar Lal, Department of Botany, University of Delhi, Delhi.

3. Shashikala, Chundi. *Plant growth and development.* Delhi, Prof. H.Y. Mohan Ram and Dr. N.S. Rangaswami Department of Botany, University of Delhi, Delhi.

## Agricultural Sciences

1. Umat, Rajiv. *Effect of sorghum based intercropping system on physiochemical properties of soil and productivity of sequence crops in Malwa region.* Devi. Ahilya. Dr. Y.M.

Upadhyay, Retired Scientist, Indian Agricultural Research Institute, Regional Station, Indore.

## Medical Sciences

1. Chauhan, Yashawant. *A comparative study of swastha vritta and yoga with the modern preventive and social medicine.* BHU. Dr. I.P. Singh, Department of Basic Principles, Banaras Hindu University, Varanasi.

2. Mishra, Jai Krishna. *Study on respiratory allergy.* BHU. Prof. D.C. Roy, Department of Tuberculosis and Chest Diseases, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

3. Misra, Alok Kumar. *Growth of Medical Sciences in Modern India.* BHU. Prof. G.P. Dubey, Department of Basic Principles, Banaras Hindu University, Varanasi.

4. Singh, Dinesh Chandra. *Role of manjistha and kanchnar on diabetic microangiopathy.* BHU. Prof. J.K. Ojha, Department of Dravyaguna, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

5. Soni, Sunita Rani. *Hemchandra ke vyaktitwa evam krititwa ka adhyan : Ayurveda ke paripecthya me.* BHU. Prof. Jyoti Mitra, Department of Basic Principles, Banaras Hindu University, Varanasi.

6. Tongia, Sudhir Kumar. *Study of the effects of certain drugs on biochemical characteristics of spermatozoa for fertility modulation of spermatogenesis only.* Devi Ahilya, Dr. M.M. Laloria, Prof. and Head, School of Life Sciences, Devi Ahilya Vishwavidyalaya, Indore.

# THESES OF THE MONTH

## A List of Doctoral Theses Accepted by Indian Universities

### PHYSICAL SCIENCES

#### Mathematics

1. Andotra, Janak Singh. *Completely finitistic spaces and G-finitistic spaces.* Jammu. Dr. Satya Deo, Reader, Department of Mathematics, University of Jammu, Jammu.

2. Basu, Kamal Krishna. *Some problems on small-scale atmospheric turbulence.* Calcutta.

3. Chakraborti, Rathindranath. *Singularities in multi-layered fluid media together with a scattering problem.* Calcutta.

4. Chander Sheikher. *Tautness and cotautness.* Jammu. Dr. Satya Deo, Reader, Department of Mathematics, University of Jammu, Jammu.

5. Lal Chandra. *Some problems on fixed point theorems.* HS Gour. Dr. K.C. Shrivastava, Reader, Department of Mathematics, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

6. Pramod, K.V. *Numerical and analytical studies of some problems of water waves.* CUST. Dr. M. Jethavedan, Reader, Department of Mathematics and Statistics, Cochin University of Science and Technology, Cochin.

7. Rama, R. *Some studies of substitutions in L systems.* Anna.

8. Ramalakshmi, D. *Graceful valuations of graphs.* Venkateswara. Dr. Vangipuram Srinivasan, Department of Mathematics, Sri Venkateswara University College, Tirupati.

9. Saha, Anuradha. *Studies of the structure and evolution of central part of galaxies with special emphasis on the explosive events in their nuclei and the consequent star formation.* Calcutta.

10. Swamy, M. *On kinematic aspects of viscous compressible hydromagnetic fluid flows.* Osmania.

11. Uma Shankar, B. *Multi-domain strategies for the resolution of potential fields.* Osmania.

12. Vijaya Kumar, K. *Group theoretic techniques for the solutions of nonlinear differential equations of physical systems.* IIT Delhi. Prof. O.P. Bhutani, Department of Mathematics, Indian Institute of Technology, New Delhi.

#### Statistics

1. Narasimhulu, Y.C. *On some release rules in dam models.* Venkateswara. Prof. M.P. Sastry (Retd.), Department of Statistics, Sri Venkateswara University College, Tirupati.

#### Physics

1. Bandyopadhyay, Krishnanath. *Baryon nonconservation and CP violation in horizontal gauge theories.* Visva Bharati, Prof. Asim K. Ray, Department of Physics, Visva-Bharati, Santiniketan.



2. Bhattacharyya, Rupayan. *Investigation of the structure of some closed shell nuclei*. Calcutta.
3. Chakrabarti, Biswajit. *Temporal filtering and imagery using vector nature of light*. Calcutta.
4. Das, Biplab Kumar. *Study of Mossbauer effect in deformed stainless steel foils*. Calcutta.
5. Ghosh, Syamal Kumar. *Study on some physical properties of pineapple leaf fibre in relation to its technological application*. Calcutta.
6. Ghoshal, Sarmishtha. *Double resonance line shape and related phenomena*. Calcutta.
7. Goswami, Kalyan Sindhu. *Studies of double layers in unmagnetized and magnetized plasma*. Gauhati. Dr. S. Bujarbarua, Assoc. Prof., Institute of Advanced Study in Science and Technology, Khanapara, Guwahati and Prof. K. M. Pathak, Department of Physics, Gauhati University, Guwahati.
8. Mukherjee, Ashim Kr. *Investigations on the behaviour of some rare earth ions in crystals*. Burdwan. Dr. Dhiraj Neogi, Prof., Department of Physics, University of Burdwan, Burdwan.
9. Mukhopadhyay, Biswarup. *Some super symmetric effects in weak interactions*. Calcutta.
10. Muthal, Pradip Laxman. *Study of polyethylene based phosphors with special reference to possible applications to thermoluminescence dosimetry*. Nagpur. Dr. B.T. Deshmukh, Head, Department of Physics, Nagpur University, Nagpur.
11. Rastogi, Ravi Shankar. *Growth kinetics and electronic properties of molybdenum based silicides*. IIT Delhi. Prof. K.L. Chopra, Director, Indian Institute of Technology, Kharagpur and Dr. V.D. Vankar, Department of Physics, Indian Institute of Technology, New Delhi.
12. Sinha, Dolly. *Investigations on the dielectric, electric and structural properties of lead zirconate titanate-polymer composites*. IIT Delhi. Prof. P.K.C. Pillai, Department of Physics, Indian Institute of Technology, New Delhi.
13. Syam, Debapriya. *Study of proton-proton and heavy-ion collisions at relativistic energies within a hydrodynamical system*. Calcutta.

#### Chemistry

1. Abdul Samad. *Studies on (I) fungicidal and toxicological properties of saligenin cyclic phosphoramidothionates, and (II) toxicological effects of some pesticides on algae*. NBU.
2. Agrawal, Hira Lal. *Discussion of kinetic parameters of thermolysis from thermogravimetric data of a few transition metal complexes*. Magadh.
3. Ambade, Kartik Amarsingh. *Forensic science examination of various types of spirituous preparations and post mortem biological materials containing methanol/ethanol or both by employing thin layer chromatography and U.V. spectrophotometry*. Nagpur. Dr. L.U. Sankale, Department of Chemistry, Institute of Science, Nagpur.
4. Bhandari, N.S. *Tellurium (IV)-B-diketones: Preparative and spectral investigations*. IIT, Delhi. Prof. B.L. Chandelwal, Head, Department of Chemistry, Indian Institute of Technology, New Delhi.
5. Bidhendi, Gholamreza Nabaei. *Synthesis of some gamma-benzo-pyrone derivatives*. Delhi.
6. Chandrasekhar, A.C.H. *Thermodynamic properties of organic liquid mixtures*. Venkateswara. Dr. G.K. Raman, Department of Chemistry, Sri Venkateswara University College of Engineering, Tirupati.

7. Ghosh, Rajasri. *Studies on the structure and properties of electrochemical double layer at solid-solution interfaces*. Visva Bharati. Dr. K.C. Ray, Department of Chemistry, Visva Bharati, Santiniketan.
8. Hosamani, Kallappa Mahadevappa. *Studies in fatty acids*. Karnatak. Dr. C.D. Daulatabad, Reader, Department of Organic Chemistry, Karnatak University, Dharwad.
9. Jha, Rajiv Kishore. *Synthesis of titanate coupling agents and their application in mica-filled polypropylene*. IIT Delhi. Prof. N.K. Jha, Department of Chemistry, and Prof. (Miss) P. Bajaj, Department of Textile Technology, Indian Institute of Technology, New Delhi.
10. Khatta, Anil Kumar. *Thermodynamic and transport properties of some solutions involving carbohydrates*. HP.
11. Lakkannavar, Chandrashekhara Devendrappa. *Synthetic studies in coumarins*. Karnatak. Dr. V.D. Patil, Reader, Department of Chemistry, Karnatak University, Dharwad.
12. Nand Kishore. *Thermodynamic studies of some nucleic acid bases, nucleosides and nucleotides in water and aqueous solutions of some sugars, salts and urea*. IIT, Delhi. Prof. J.C. Ahluwalia, Department of Chemistry, Indian Institute of Technology, New Delhi.
13. Nema, Krishna. *Physico-chemical studies of coordination compounds of some selected rare earths and transition elements*. HS Gour. Dr. Farid Khan, Lecturer, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.
14. Pathak, Alekha. *Studies with zeolite molecular sieves*. HS Gour. Prof. S.P. Banerjee, Head, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.
15. Saksena, Rene. *Synthetic studies in benzyl phenyl ketones, propiophenones, chromanones and chromones*. Delhi.
16. Sambaiiah, T. *New heterocycles derived from 2-aminopyrazine, 2-aminothiazole (5,4-b) pyridines and 2-aminobenzoxazoles*. Osmania.
17. Selvapathy, P. *Methods for the determination of hydrogen sulphide, sulphur dioxide and carbon monoxide in ambient air*. Anna.
18. Sharma, Rajiv Kumar. *Oxidative decarboxylation of aleuritic acid and its derivatives leading to the synthesis of insect pheromones and related biologically active compounds*. Delhi.
19. Singh, Roopa. *Study of coordination compounds of transition metals with selected organic ligands*. HS Gour. Dr. R.K. Gautam, Reader, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.
20. Sirigi Reddy, R. *Synthetic approach to thiomorpholines and dithienoxides: The use of Z, E-bis (styryl) sulfones and alkylstyrylsulfonyl acetates as synthons*. Venkateswara. Prof. D. Bhaskara Reddy, Department of Chemistry, Sri Venkateswara University College, Tirupati.
21. Syed Mustafa Ali. *Homogeneous hydrogenation of cyclohexene catalysed by Rh (I) and Ir (I) complexes containing phosphine donor ligands*. Osmania.
22. Thakare, Vijay Govindrao. *Synthetic studies in oxygen and nitrogen heterocyclic compounds*. Amravati. Dr. K.N. Wadodkar, Department of Chemistry, Govt. Vidarbha Mahavidyalaya, Amravati.
23. Vijayan, K. *Analytical applications of ternary complexes for the determination of trace amount of metals*. Calicut. Dr. C.P. Savariar, Prof., Department of Chemistry, University of Calicut, Calicut.



1. Govindaiah, S. *Mineragraphy, petrology and geochemistry of vanadium bearing titaniferous, magnetites, sulphides and associated rocks of Masanikere Area, Shimoga District, Karnataka, India*. Bangalore. Prof. A M. Pathan, Department of Geology, Bangalore University, Bangalore.

2. Jyothender Reddy, Y. *Petrological and geochemical studies of the Pasupugallu Gabbro-anorthosite pluton, Prakasam District, A.P.* Osmania.

3. Maheshwari, Gopal. *Structure, stratigraphy and mineralisation in the area around Girar and Dhori Sagar, Lalitpur District, Uttar Pradesh*. HS Gour, Dr. P.P. Roday, Reader, Department of Applied Geology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

4. Mahto, Dharum. *Hydrological and geochemical studies of ground water associated with hard rocks of Southern Singhbhum around Hatgamarla, Chaibasa, Bihar*. Ranchi.

5. Singhal, Kishore Kumar. *Studies on some aspects of geomorphology in Alaknanda River Basin, Kumaun Himalaya, Uttar Pradesh*. Delhi.

6. Vaghmarey, Narendra Hari. *Stratigraphy, structure, tectonics and basement cover relations in the Delhi Supergroup Rocks between Liri and Khimpura (Masuda) Central Rajasthan*. HS Gour, Dr. P.P. Roday, Reader, Department of Applied Geology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

#### Engineering & Technology

1. Atul Kumar. *Parametric instabilities in magnetized plasmas*. IIT Delhi. Dr. R.P. Sharma, Centre of Energy Studies, Indian Institute of Technology, New Delhi.

2. Baskaran, R. *High density electron-cyclotron resonance plasma production by slotted line antennas*. IIT Delhi. Dr. G. Umesh, Department of Physics, and Dr. A. Ganguli, Centre of Energy Studies Indian Institute of Technology, New Delhi.

3. Basu, Shibanshu Sekhar. *Electrical energy: Capacity planning and distribution management*. IIT Delhi. Prof. M.S. Sodha, Department of Physics, Indian Institute of Technology, New Delhi.

4. Bose, Pratima Rani. *Three dimensional dynamic analysis of tall buildings due to wind forces*. IIT Delhi. Dr. T.K. Datta, Department of Civil Engineering, Indian Institute of Technology, New Delhi.

5. Dhanvanthri, K. *Some aspects of synthesis and analysis of power system stabilisers*. Osmania.

6. Fakbir, Abdul Rasool N. *A study on the chemical treatment of sewage using SRP*. Delhi.

7. Gupta, Mohinder Nath. *Design and development of asynchronous termination detection algorithms for distributed computations*. IIT Delhi. Prof. R.K. Arora, Department of

Computer Science and Engineering, Indian Institute of Technology, New Delhi.

8. Kar, Prafulla Kumar. *A class of upper bound solutions for section extrusion*. Sambalpur. Dr. N.S. Das, Assistant Prof., Department of Mechanical Engineering, Regional Engineering College, Rourkela.

9. Kulkarni, Nagaraj. *Effect of petrographic composition on the physical properties of coal*. ISM. Dr. T. Sharma, Department of Mineral Engineering, Indian School of Mines, Dhanbad.

10. Paramsivam, Ramalinga. *Studies on slow sand filters*. NEERI, Nagpur. Dr. B.B. Sundaresan, Director, National Environmental Engineering Research Institute, Nagpur.

11. Saxena, Sneha. *Structure property relationship in polyimide films*. IIT Delhi. Prof. (Mrs) I.K. Varma, Centre for Material Science and Technology, and Prof. D.S. Varma, Department of Textile Technology, Indian Institute of Technology, New Delhi.

12. Sharma, Harish Chandra. *Sub-surface drainage of two-layered soil*. IIT Delhi, Dr. P.N. Kapoor, Department of Civil Engineering, Indian Institute of Technology, New Delhi.

13. Sinha, Radha Raman. *Some studies on concurrency control and recovery in distributed database systems*. IIT Delhi. Prof. S.I. Ahson, Department of Electrical Engineering, Indian Institute of Technology, New Delhi.

14. Sriram, Rajagopal. *Molecular basis of sporulation in bacillus—studies on the formation and characterization of the crystal proteins of Bacillus thuringiensis var israelensis*. Anna.

15. Tanwar, Lakhan Singh. *Metrological studies with an electro-optical sensor*. IIT Delhi. Dr. B.N. Gupta, Instrument Design Development Centre, Indian Institute of Technology, New Delhi.

16. Tiwari, Anant Ram. *Semi-continuum method of design of skew girder bridges*. IIT Delhi. Prof. C.S. Surana, Department of Civil Engineering, Indian Institute of Technology, New Delhi.

17. Vashist, Trilok Kumar. *Stability of boundary layer flow over a flat plate*. IIT Delhi, Dr. P.K. Sen, Department of Applied Mechanics, Indian Institute of Technology, Hauz Khas, New Delhi.

18. Verghese, P. Aby. *Characteristics of 76 mm dense medium cyclone*. ISM. Prof. T.C. Rao, Department of Mineral Engineering, Indian School of Mines, Dhanbad.



**Government of India**  
**Ministry of Human Resource Development**  
**(Department of Education)**

Applications are invited for the two scholarships schemes described below. Please note that though these are two distinct schemes, candidates may apply for either one or if eligible for both. Candidates applying under both schemes should indicate their preference, if any as they may be considered for both schemes together.

**A. COMMONWEALTH SCHOLARSHIPS AND FELLOWSHIPS FOR 1990-91**

I. Applications are invited from Indian nationals in the format given below for the award of Commonwealth Scholarships tenable from October, 1990 for higher studies/research/training in the subjects mentioned below in the United Kingdom (Subject to receipt of confirmed offer from donor Government). Canada (46 nominations), Hong Kong (3 nominations), Nigeria (2 nominations) and Trinidad & Tobago (1 nomination).

II. Value : Scholarships cover tourist class air passage (both ways) fees, adequate maintenance and other allowances.

III. Age : Candidates should be below 34 years of age on 30.9.89. Preference will, however, be given to candidates who are below the age of 30 years. The upper age limit is, however, relaxable by two years in the case of SC/ST candidates. (For all the countries).

**(A) MEDICINE (FOR U.K. ONLY)**

Cancer Research (including Cancer Epidemiology), Cardiology Gynaecology and Neurosurgery.

**(B) ENGINEERING & TECHNOLOGY**

Computer Studies including Information Technology. Word Processing, Data Processing and Micro-Electronics Applications; Electronics; Environmental Science and Engineering, Ocean Engineering; Paper Technology; Remote Sensing Technology; Communication Engineering including Satellite Communication, Optical Fibre Communication & Digital Communication; Bio-Technology/Biochemical Engineering; Instrumentation/Process Controls related to petrochemicals including Micro-processor Technology; Robotics very large scale integration/Artificial Intelligence and Quality/Reliability Engg.

**(C) SCIENCE (PURE AND APPLIED)**

Biochemistry, Computer Science; Mathematics; Molecular Biology, Microbiology and Physics (Solid State/Plasma).

**(D) AGRICULTURE AND ALLIED FIELDS**

Animal Husbandry; Agronomy; Food Technology; Forest Economics and Horticulture.

**(E) HUMANITIES AND SOCIAL SCIENCES**

Anthropology (Physical/Social); Archaeology; Economics; Education/Pedagogy; English Language & Literature; Fine Arts (including Western Painting,

Art History, Graphic Design and Sculpture); History; Library Science; Museology; Philosophy; Scientific Conservation; Sociology; Political Science; Mass Communication and Psychology.

**(IV) Minimum Qualifications and Experience Required**

**(A) MEDICINE**

MD/MS in the subject field selected should have at least 60% marks at either Bachelor's or Master's degree level with two years continuous teaching/research or practical experience thereafter on 30.9.1989. Scholarships are only for specified project oriented training in higher techniques and methodology. These are not for generalised training or for studies/training leading to a degree or diploma.

**(B) ENGINEERING AND TECHNOLOGY**

First Class Master's degree in Engineering/Technology in the subject field selected or a related field with two years continuous teaching/research or practical experience thereafter on 30.9.1989, except in Paper Technology. Candidates who have been Science students and wish to apply under this group, must also have Master's degree in Engineering/Technology with two years continuous experience.

**QUALIFICATIONS FOR PAPER TECHNOLOGY**

Master's degree in Engineering/Master's degree in Chemistry/Bachelor of Engineering (Pulp & Paper) University Diploma in Pulp & Paper with 2 years/4 years/3 years or 5 years experience respectively.

**(C) SCIENCE (PURE AND APPLIED)**

First Class Master's Degree in the subject field selected or in a related field with two years continuous teaching/research or practical experience thereafter on 30.9.1989.

**(D) AGRICULTURE & ALLIED FIELDS**

First Class Master's degree in the subject field selected or in a related field with two years continuous teaching/research or practical experience thereafter on 30.9.1989.

**(E) HUMANITIES & SOCIAL SCIENCES**

First Class Master's degree in the subject field selected or in a related field with two years continuous teaching/research or practical experience thereafter on 30.9.1989, subject to the following :

**HUMANITIES & SOCIAL SCIENCES**

(a) Archaeology : The Master's degree should be in Ancient/Medieval History/Archaeology.

(b) History : Background in European History is desirable.

(c) Museology : Diploma in Museology is desirable.

(d) Scientific Conservation : Master's degree in Chemistry/Bachelor's degree in Civil Engineering with



Chemical/Structural/Preservation as field of specialisation.

(e) Fine Arts : Qualifications for Fine Arts are 5 years National Diploma in Fine Arts from a recognised Institution/University, Master's degree in Fine Arts/History of art desirable. Five black and White or coloured slides or prints/photograph may be attached with the application. Experience not essential.

#### HONG KONG

##### SUBJECT FIELDS

Economics, Electronics and Business Administration.

##### Minimum Qualifications and Experience Required

First Class Master's degree in the subject field with continuous two years teaching/research or practical experience thereafter on 30.9.1989.

#### NIGERIA

##### SUBJECT FIELDS : Forest Economics

##### Minimum Qualifications and Experience Required

First Class Master's degree in the subject field or related field with continuous two years teaching/research or practical experience thereafter on 30.9.1989.

#### TRINIDAD & TOBAGO

##### SUBJECT FIELD : Tropical Agriculture (including Horticulture)

##### Minimum Qualifications and Experience Required

First Class Master's degree in the subject field with two years teaching/research or practical experience thereafter 30.9.1989.

#### B. 'NEHRU CENTENARY BRITISH FELLOWSHIPS/AWARDS SCHEME FOR 1990-91'

Applications are invited from Indian nationals in the format given below for the award of 31 scholarships under the NEHRU CENTENARY BRITISH FELLOWSHIPS/AWARD SCHEME for the year 1990-91. These scholarships will be offered in the following subject fields :

1. Indian Studies (viz. Indian History/Art and Culture); 2. International Relations; 3. Media/Journalism/Communication studies; 4. Law; 5. English Literature; 6. Contemporary History; 7. Political Science; 8. Economics; 9. Computer Science; 10. Electronics; 11. Mathematics; 12. Physics; 13. Chemistry; 14. Sociology and 15. Biological Sciences.

##### Duration of Scholarships

The duration of the scholarships is upto three years from 1st October, 1990.

##### Value of Scholarships

Scholarships cover tourist class air passage (both ways) fees, adequate maintenance and other allowances.

##### Minimum Qualifications

Uniformly good academic record with First Class Master's degree in the subject field or in a related field (for Indian Studies, background in Indian History and Indian Art and Culture is desirable).

Age : Candidates should be below 34 years of age as on 30.9.1989. Preference will, however, be given to candidates who are below the age of 30 years. The

upper age limit is, however, relaxable by two years in the case of SC/ST Candidates.

#### V. LAST DATE FOR THE SUBMISSION OF APPLICATION

Applications alongwith the required documents (Photos, Photostat copies of all certificates/degree/diplomas) should reach the Assistant Educational Adviser, External Scholarships Division, E. S. 4 Section, Ministry of Human Resource Development (Department of Education) Room No 517, B Wing, Shastri Bhavan, New Delhi-110 001 latest by 6th October, 1989.

#### VI. IMPORTANT INSTRUCTIONS

1. A candidate may apply for only one subject of his choice.

2. This Ministry generally nominates double the number of candidates against the number of Scholarships offered. The final selection rests with the donor Government.

3. Candidates who have already appeared for interview more than twice (whether for one of the schemes or both) are not eligible to apply.

4. Mere fulfilment of requirements as laid down in the advertisement does not qualify a candidate for interview. Interview letters in a particular subject are sent only to a limited number of candidates after their applications are examined by a Selection Committee of Experts.

5. The name of the Scholarships Scheme and (in case of Commonwealth Scholarships) the Country or Countries for which the candidate prefers to be considered should be indicated clearly on the top of the application, if the applicant has any preference. Candidates preferences will be kept in view as far as possible but candidates selected may be nominated for either scheme or any country according to administrative convenience.

6. Applications must be accompanied by attested copies of all the certificates, diplomas, degrees, marks sheet in respect of all the examinations passed alongwith caste certificates in respect of Scheduled Caste and Scheduled Tribes candidates and experience certificate of employment and one copy of recently taken passport size photograph with signature (to be pasted on the application form).

7. Candidates already holding a Ph.D. degree may be considered for Post-Doctoral research in U.K. only. Those who have already done a Ph.D. in India or abroad will not be considered for award of a second Ph.D.

8. Equivalent foreign degrees and diplomas are acceptable.

9. Candidates who have already been abroad for studies/training specialisation either in scholarships or in their own, for a period exceeding six months are eligible to apply if they have been in India for at least 3 consecutive years after returning from abroad.

10. Candidates who are abroad are not eligible to apply.

11. In case of candidates qualifying from Universities/Institutions which do not give class or Division,



requirements in lieu of 1st Class would be 60% marks, where grades are awarded, the candidates are required to furnish exact percentage of marks and indicates the conversion formula.

12. Candidates will be expected to have some knowledge of India and of the donor country.

13. Candidates who are employed must apply through their employers. Candidates belonging to the All India Services should send their applications through their Cadre Controlling Authority.

14. Candidates belonging to SC/ST community must attach a copy of certificate from the competent authority i.e. First Class Magistrate (S.D.O. District Magistrate/Collector).

15. For candidates who are doing Ph.D. or M.Phil, after completion of Master's Degree, actual period of research will be taken into consideration as experience. (A certificate and progress report to that effect from the Universities/Institute should be attached, otherwise no credit will be given.

16. While indicating the period of past experience and period of past stay abroad, candidates should mention the specific dates.

17. As these are scholarships offered by Foreign Governments, the applications should be submitted in English.

18. Applications in subject-fields other than those specified in the advertisement will not be considered.

19. Candidates who do not possess the requisite qualifications need not apply.

20. Candidates must furnish a clear and precise programme of study/research (minimum 300 words).

21. Incomplete applications and applications received late after the stipulated date will not be considered and no correspondence in this regard will be entertained.

22. Documents submitted alongwith the application will not be returned. Hence, candidates are advised to send only photo copies of the certificates etc.

23. Canvassing in any form will disqualify a candidate.

24. The Selection Committee's decision about candidate for interview or selecting a candidate for nomination will be final. NO REPRESENTATIONS IN THIS REGARD WILL BE ENTERTAINED.

Note : BEFORE FILLING UP THE APPLICATION, CANDIDATES ARE ADVISED TO GO THROUGH THE INSTRUCTIONS CAREFULLY.

#### PROFORMA FOR APPLICATION

1. Name of the Scholarship Scheme :

2. (a) Subject :

(b) Sub-Subject :

3. (i) Name of the Candidate Shri/Smt./Kum.

(In Block letters), with full mailing address

(ii) Marital Status :

4. Date of Birth and the State to which the candidate belongs :

Recent Passport size photograph duly signed and (name should be given in capital letters) to be pasted here. Without photo application will be treated incomplete.

5. Whether a member of SC/ST : If so, give full particulars (Enclose certificate duly signed by 1st Class Magistrate).

6. Academic record starting from High School/ Higher Secondary.

(Attested/Photostat copies of Certificates to be attached).

Name of the University/ Board/ Institution.	Exami- nation(s) of passed	Year of passing	Division/ Class with position, if any*	% age of marks obtained, position if any.	Subjects taken
---	----------------------------	-----------------	--	---	----------------

\*(In case of no Division/Class is awarded & only grading is done, the conversion formula adopted may be mentioned).

7. Details of Professional/Practical Training and Research Experience, specifying the period and number of papers published, previous employment with name and date of employment, if any.

8. Nature of the present employment with date of appointment, designation and the name & address of the employer.

9. Names, designations and addresses of three referees who are familiar with the work of the scholars : NB : Candidates called for interview will have to bring with them the comments of all three referees.

10. Have you been abroad ? If so, give full particulars of the country and the period. Also mention the year & date of return to India.

11. Proposed programme of study/research/training specifying : (i) the work at which engaged in (ii) Nature & programme of study/research/training desired. (iii) future plans/prospects after the proposed studies/research/training; and (iv) how are these related to the technical or economic development of India.

Place :

(Signature of the Candidate)

Date :

Note : Employed persons must send their applications fully sponsored by their employers. However, advance applications if they are complete in all respects (Photo copies of Certificates etc. to be attached) will be considered provisionally subject to the condition that applications through proper channel should reach the Assistant Educational Adviser, ES-4 Section, Ministry of Human Resource Development, Department of Education, Shastri Bhavan, New Delhi-110 001 by the stipulated date.

NB : No postal Order is required to be submitted as the same has been dispensed with for the time being.

davp 89/621



## CLASSIFIED ADVERTISEMENTS

### UNIVERSITY OF KALYANI

KALYANI, NADIA-741235

Advt. No. 3/89

Dated : 12.9.89

Applications in prescribed form are invited for the following post on the scale mentioned below with allowances as admissible under the University rules.

- (1) Department of History—(a) Lecturer in History-3 (three) posts, one permanent/one Temporary against lien vacancy/one post (7th Plan post of Lecturer in History—Reserved for Scheduled Caste candidate) (At least 55% marks in Master's Degree in History).

Specialization : (i) Permanent Post-Economic History of Modern India. (ii) Temporary post against lien vacancy—Any branch of Modern History. (iii) 7th Plan post (Reserved for Scheduled caste candidate) — Any branch of Indian History.

- (2) Department of Commerce—(b) Lecturer in Commerce—One post (7th Plan). (At least 55% marks in Master's degree in Commerce with specialization in Accountancy Group and Honours in Accountancy).

Desirable Qualification : Professional Degree/Diploma in Accountancy.

- (3) Department of Political Science—(c) Lecturer in Political Science : One post (7th plan). (At least 55% marks in Master's Degree in Political Science).

Specialization : Comparative Politics/Indian Political System/Public Administration.

- (4) Department of Bio-Chemistry & Bio-Physics—(d) Lecturer in Bio-Physics—One post (Permanent). (At least 55% marks in Master's degree

in Physics with Bio-Physics as special paper or [at least 55% marks in Master's degree in Bio-Physics with Honours in Physics).

Desirable : (a) Teaching experience at the postgraduate level and research experience in Molecular Biology. (b) M.Phil or Ph.D. in Environmental Sciences.

- (5) Department of Chemistry—Lecturer in Chemistry (Physical Chemistry)—One post (Permanent). (At least 55% marks in Master's degree in Chemistry).

Specialization : M.Sc. in Chemistry with specialization in Physical Chemistry. Scale of Pay : Rs. 2200-75-2800-100-4000/-. Age : Preferably below 40 years.

A circular containing details of qualifications, pay and allowances and other relevant information may be had from the office of the undersigned from 18th September to 5th October 1989 between 11.30 a.m. and 3 p.m. on working days (no form will be issued on Saturdays) separately alongwith the application form on payment of Rs. 7.50 (charge one-fourth for SC/ST candidates) by current Crossed Indian Postal Order in favour of the University of Kalyani personally or by sending a self-addressed stamped (Rs. 1.80) envelope (25 c.m. × 12 c.m.) Application forms complete in all respect according to the instructions given in the circular must reach the office of the undersigned on or before 5th October, 1989.

SC/ST candidates must produce documents of Caste from the appropriate authority (S.D.D.) at the time of collecting forms.

Candidates called up for interview for the posts will have to appear for the same at their own cost.

P. Sircar  
REGISTRAR

### INDIAN INSTITUTE OF SCIENCE

BANGALORE-560 012

Requires

SCIENTIFIC OFFICER in the Department of Aerospace Engineering.

#### Qualifications & Experience

Essential : A Master's Degree in Instrumentation/Aerospace Engineering Computer Science or Equivalent with a flair for computer oriented instrumentation development.

Desirable : Experience in the area of design/development of micro-processor based instrumentation.

Emoluments : Rs. 3,388/- p.m. in the scale Rs. 2200-4000

Details and prescribed application form can be obtained from the Registrar, Indian Institute of Science, Bangalore-560 012 on request accompanied by an IPO for Rs. 10/- drawn in favour of him (free of cost to SC/ST on production of Caste Certificate from a competent authority) alongwith a self-addressed stamped (Rs. 2.00) envelope of the size 28 cms. × 18 cms. on or before 9th October, 1989.

R(IA) 308-28/89

REGISTRAR

**It Pays  
to  
Advertise  
in  
University News**



# BHARATHIAR UNIVERSITY-COIMBATORE 641 046

ADVERTISEMENT No. 8386/B7/89

Dated : 5.9.1989

Applications are invited for the following posts :

	No. of Posts	Specialisation
<b>1. DEPARTMENT OF MATHEMATICS</b>		
Professor	1 (SC/ST)	Computer Mathematics / Programming languages/ Functional Analysis/Optimisation Techniques/Differential Equations/Algebra/Fluid mechanics/Operations Research.
<b>2. DEPARTMENT OF STATISTICS</b>		
Professor	1 (SC/ST)	Sampling (Theory & Practice) Design of experiments/Statistical Quality Control/Reliability/Statistical Inference.
Reader	2 (OC-1; SC/ST-1)	
<b>3. DEPARTMENT OF BOTANY</b>		
Professor	1 (SC/ST)	Plant Bio-chemistry/Forest Botany
Reader	1 (OC)	Molecular botany/Bio-technology/Micro biology as applied to algology
<b>4. DEPARTMENT OF ENVIRONMENTAL SCIENCE</b>		
Professor	1 (OC)	Environmental genetics/Micro biology/Environmental Physiology/Environmental Pollution and toxicology.
<b>5. DEPARTMENT OF ECONOMICS</b>		
Reader	2 (OC-1; SC/ST-1)	Agricultural Economics/Econometrics/Applied Economics/Industrial Economics
<b>6. DEPARTMENT OF PSYCHOLOGY</b>		
Reader	1 (SC/ST)	Personality
<b>7. DEPARTMENT OF SOCIOLOGY</b>		
Professor	2 (OC-1; SC/ST-1)	Industrial Sociology / Rural Development / Rural Sociology Urban Sociology/Rural Development/Rural Sociology
Reader	1 (SC/ST)	
<b>8. DEPARTMENT OF POPULATION STUDIES</b>		
Reader	2 (OC-1; SC/ST-1)	Population Economics/Social Demography/Migration/Fertility
<b>9. DEPARTMENT OF LINGUISTICS</b>		
Lecturer	2 (BC-1; SC/ST-1)	Multilingualism, Lexicography and Translation Tribal literacy and Psycholinguistics
<b>10. DEPARTMENT OF TAMIL</b>		
Professor	1 (OC)	Comparative Literature Desirable : Creative Literature/Fluency in English, Depth in Traditional Tamil Grammar/Experience in Translation/Oration
Lecturer	2 (BC-1; SC/ST-1)	Stylistics/or Tamil Social, Religious and cultural History/Tamil Journalism and Mass Communication/Kongu Folk Lore/Traditional Tamil grammar/Tamil culture (Religion, Philosophy, Sports, Architecture, Fine Arts)
<b>11. ACADEMIC STAFF COLLEGE</b>		
Director	1 (OC)	
Lecturer	1 (OC)	
<b>12. BHARATHIAR SCHOOL OF MANAGEMENT AND ENTREPRENEUR DEVELOPMENT</b>		
Director	1 (OC)	



**Qualification and Experience****1. Professor**

An eminent Scholar with published work of high quality actively engaged in research. Consistently good academic record with first or second class (not below 55% or 'B' plus) Post-graduate degree in the subject or related subject and a Ph.D. degree in the subject with not less than 10 years of teaching and/or research experience at the post-doctoral level out of which not less than 3 years should be in a cadre not below that of a Reader and published research work of high standard as evidenced from the reprints or books and experience in guiding research work at Doctoral level as evidenced from the number of Ph.Ds produced.

**2. Reader**

Consistently good academic record with first or second class (not below 55% or 'B' plus) Post-graduate degree in the subject or related subject and a Ph.D. Degree in the subject with not less than 5 years of teaching and/or research experience at the post-doctoral level out of which not less than 3 years should be in a cadre not below that of a Lecturer and published research work of high standard. Evidence of being actively engaged in research and experience in guiding research as evidenced from the number of M.Phils and Ph.Ds. produced.

**3. Lecturer : (Except Academic Staff College)**

Consistently good academic record with first or second class (not below 55% or 'B' plus) Post-graduate degree in the subject or related subject and a Ph.D. degree in the subject. Two years of teaching and/or research experience at the Post-doctoral level is desirable.

**4. Director, Academic Staff College**

First or Second Class Post-graduate degree in either one of the subjects, Education, Adult Education or Psychology and Ph.D. in the same subject. Not less than 10 years of teaching and research experience. Experience in human resources development activities

and in organisation and administration of training programmes, workshops and summer institutes.

**5. Lecturer, Academic Staff College**

First or Second class Post-graduate degree in either one of the subjects, Education, Adult Education or Psychology and Ph.D. in the same subject. At least one year Post-doctoral teaching or research experience.

**6. Director, Bharathiar School of Management & Entrepreneur Development**

Should possess at least a high Second class ('B' plus or 55%) Master's Degree in Management and Ph.D degree in Management or related subjects and a minimum of 16 years of experience out of which at least 10 years must have been in teaching and research at the level of a Professor or 10 years of experience in administration in a responsible position at a Senior level.

Other qualifications according to U.G.C. norms.

**Scale of Pay**

Professor/Director : Rs. 4,500-150-  
5,700-200-7,300  
Reader : Rs. 3,700-125-4,950-150-5,700  
Lecturer : Rs. 2,200-75-2,800-100-4,000

The University reserves itself the right to short-list of applicants for interview and to fill or not to fill any or all of the above posts.

Application forms can be had from the Registrar, Bharathiar University, Coimbatore 641 046 on requisition accompanied by a self-addressed Rs. 1,400 paise stamped envelope (25 cm x 10 cm). Attested copies of certificates showing qualifications, age, community, experience, etc., should be sent along with the application in the prescribed form (in eight copies) together with Registration fee of Rs. 25/- in the form of crossed Indian Postal Order dated not earlier than 1.9.1989 drawn in favour of the Registrar, Bharathiar University, Coimbatore 641 046.

Any candidate applying for more than one post shall submit separate applications for each post.

Candidate in service shall submit their application through proper channel.

Completed applications should reach the Registrar on or before 5.10.1989.

Incomplete applications and applications without the required registration fee will not be considered.

REGISTRAR

**ANNAMALAI UNIVERSITY****ANNAMALAINAGAR****NOTIFICATION****57th Annual Convocation—1989**

The 57th Annual Convocation for conferring Degrees, Titles and Diplomas will be held at Annamalainagar either in the last week of October or early in November, 1989.

Filled in applications from the candidates for taking Degrees, Titles and Diplomas either *In Person* or *In Absentia* must reach the Registrar, Annamalai University, Annamalainagar-608 002 on or before 5th October, 1989. Printed forms of applications can be obtained by sending a self-addressed envelope affixing Rs. 1.80 paise stamp.

Post-Graduates, Professional and Research Degree holders and Paize Winners in all other degrees are alone given the option for taking their degrees "In Person". All the others are required to apply for taking their degrees "In Absentia".

**Distance Education Graduates**

Those who have not already submitted their applications for the Degree/Diplomas (In Absentia) may submit the same on or before 5th October, 1989. Separate application form will be issued for the Distance Education Graduates.

R. Rajamanickam  
REGISTRAR